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## OUTPOST INFINITY

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MANY OTHERS

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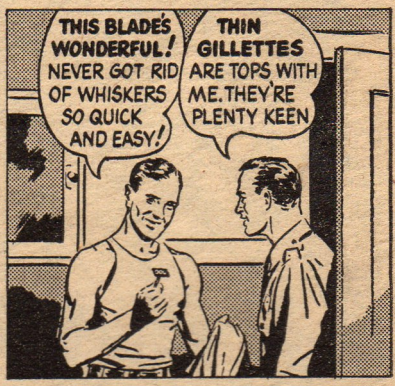

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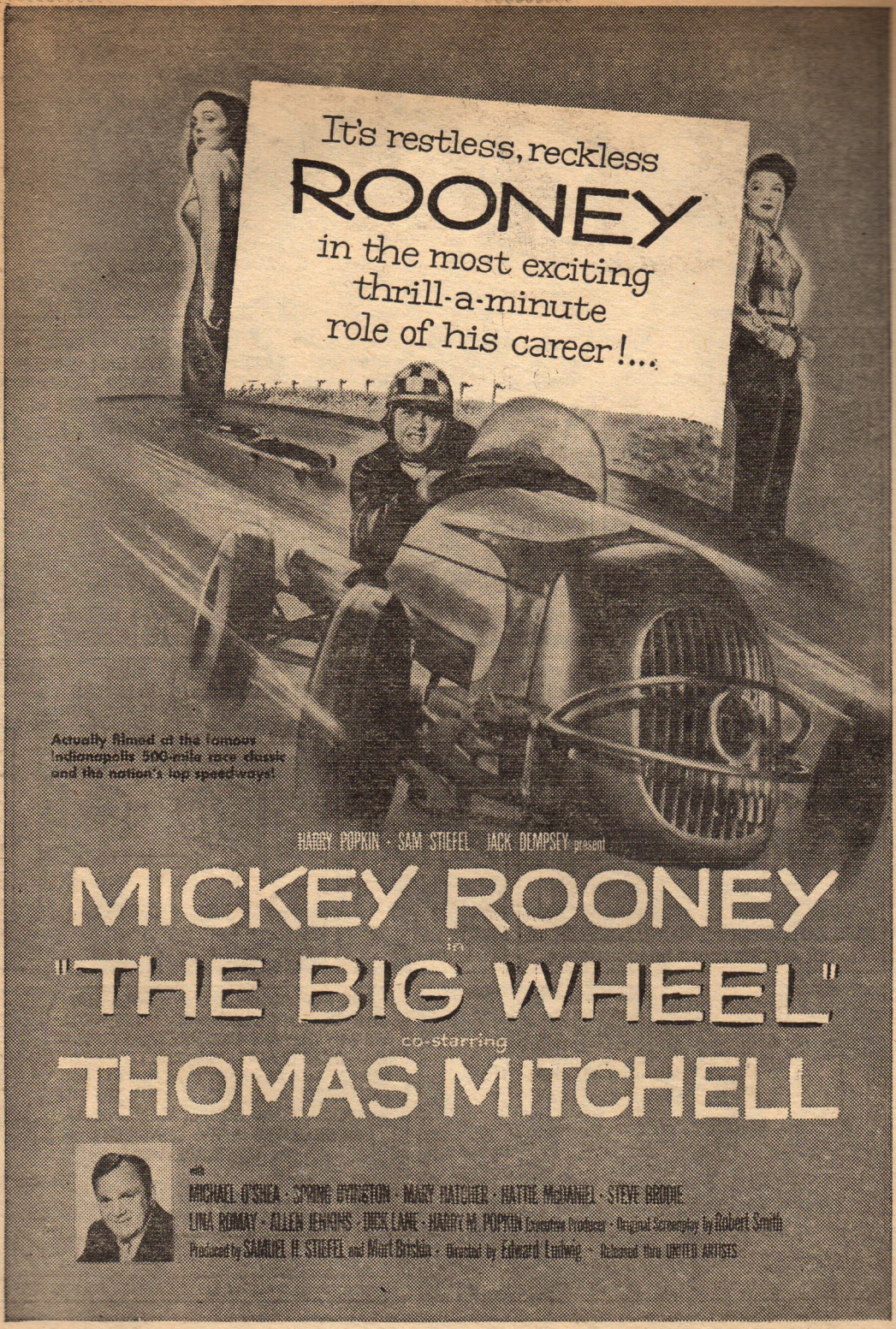
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# SUPER SCIENCE STORIES

25¢

THE BIG BOOK OF SCIENCE FICTION

VOL. 6 JANUARY, 1950 NO. 2


## TWO POWERFUL NOVELS


**OUTPOST INFINITY**.....*Raymond F. Jones* 8

Aboard the Tantalus Express, men drifted helplessly in the terrible grayness beyond the universe—while Mayhew, the only man who could aid them, plunged ever deeper into the multiplying coils of infinity!

**THE LONG DAWN**.....*Noel Loomis* 98

He came out of the prehistoric mists, pursuing a fantastic quest that had spanned a hundred million years—and would not end till Earth's ultimate millenium!


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The fourth sphere's creeping death had come at last to their own world—to make murdered Earth a fit companion for the Fear Planet!

**A FRAGMENT OF DIAMOND QUARTZ**.....*Ray Cummings* 60

Here, concealed in infinite smallness, lay the answer to Man's every desire—for knowledge, for power, or—for death!

**BEYOND ALL WEAPONS**.....*L. Ron Hubbard* 70

From the prisons, from the living graves, from the outmost stars, they came back to what had been Earth, only to find their enemy—beyond all weapons!

**SPIN, DEVIL!**.....*John Wade Farrell* 81

They whirled, all who heard your rocket song, dying and dead against the stars—But he who plays that hellish tune must dance to it—so—spin, devil!

**THE FINAL FRONTIER**.....*Robert Moore Williams* 88

Now Barnett realized he never would approach that deepest reality, until he followed the footsteps of his hours-dead friend into the final frontier!


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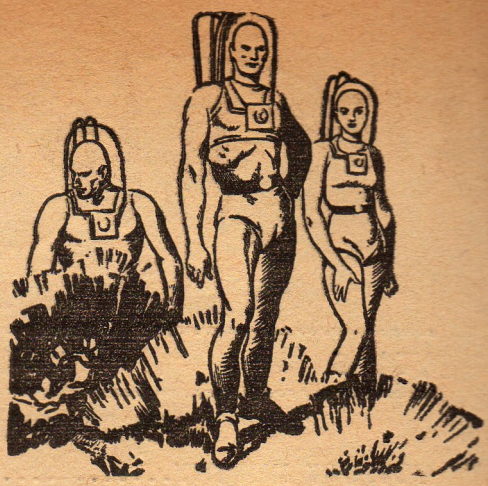

# FANDOM'S CORNER

**Conducted by James V. Taurasi**

THE SEVENTH World Science Fiction Convention—the "Cinvention" held over the Labor Day holidays in Cincinnati, was the most successful yet, fans agree. For three days, fandom sat back and enjoyed speeches, announcements and information supplied by known authors, editors and the plain fans. Such scientifiction personalities as E. E. (Skylark) Smith; Ted Carnell, who came all the way from England; Milt Rothman; Lester Del Rey; Basil Wells; L. A. Eshbach; Forrest J. Ackerman; Bob Tucker; Sam Moskowitz; V. T. Hamlin, creator of Alley Oop; Jack Williamson; Rog Phillips; L. Jerome Stanton; Fred Pohl, and many others were present.

Over television station WLWT, with Dave Kyle as M.C., a number of authors, editors and fans held a serious discussion of science-fiction—a symptom of the greater recognition by the general public being accorded science-fiction and its devotees. As usual the auction was one of the most interesting features of the convention. Many items donated by the publishers of professional magazines and stf. books

*(Continued on page 123)*

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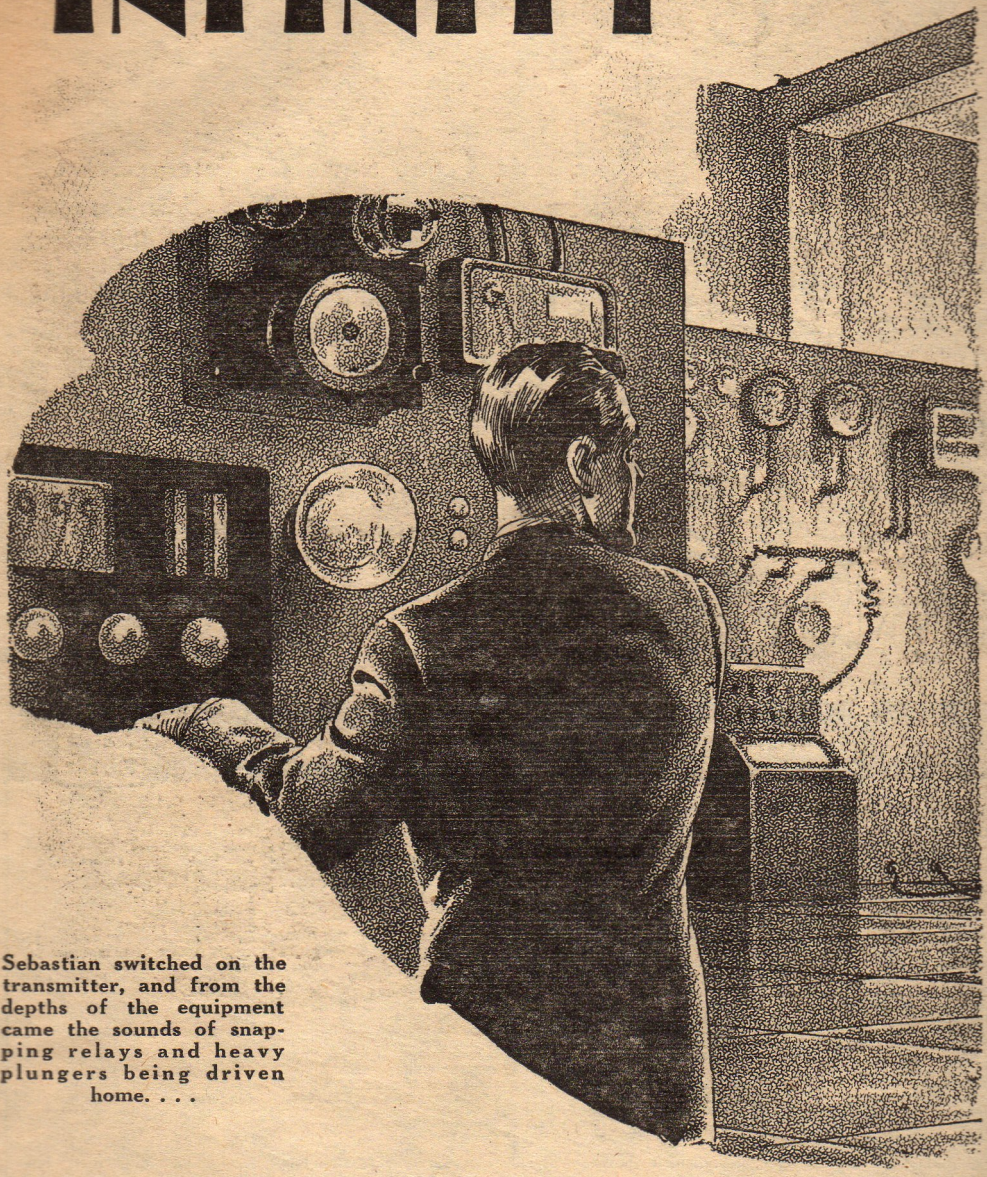
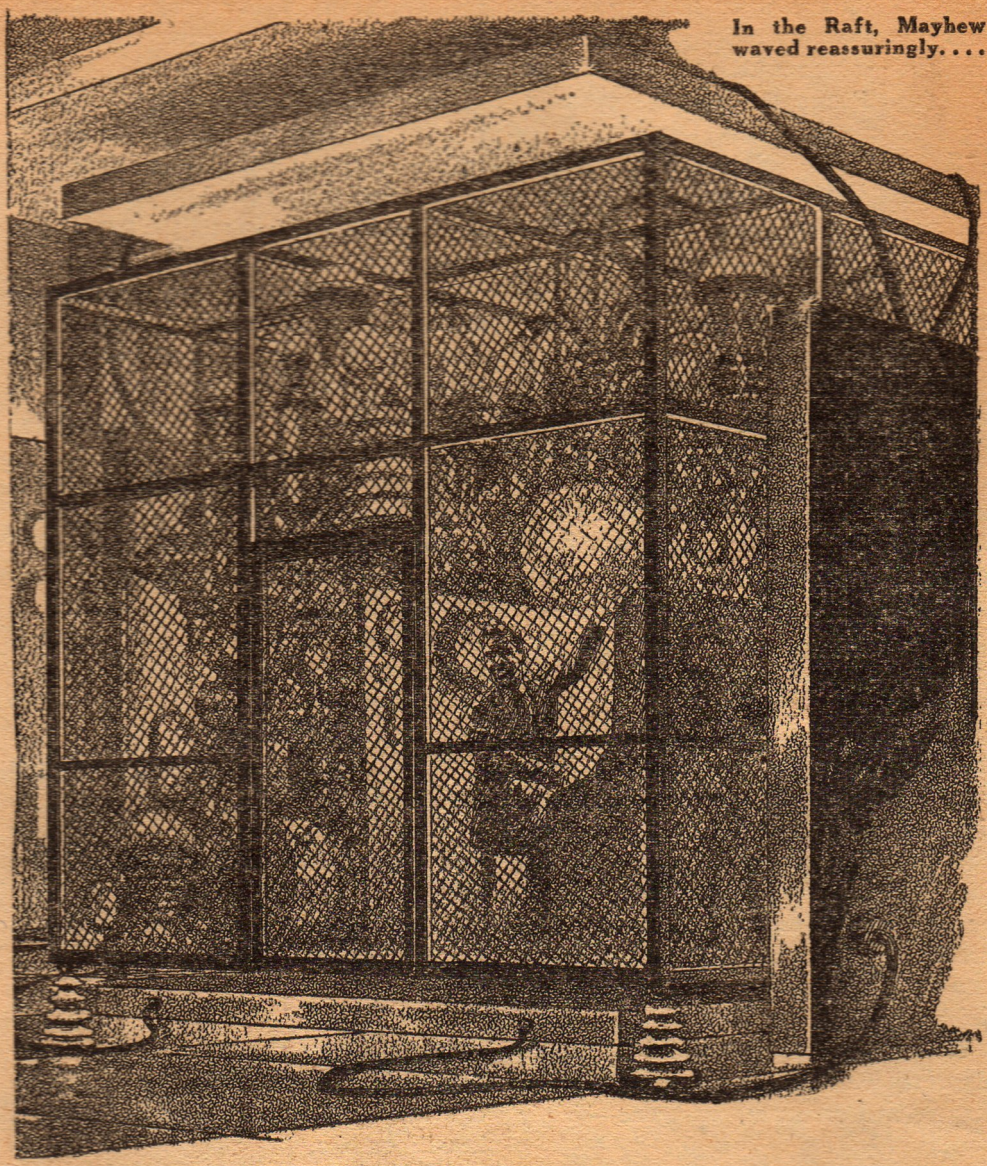


Sebastian switched on the transmitter, and from the depths of the equipment came the sounds of snapping relays and heavy plungers being driven home. . . .

***Adrift in the terrible grayness beyond the universe, the passengers and crew of the Tantalus Express waited hopelessly for death . . . while Mayhew, the only man who could aid them, plunged ever deeper into the multiplying coils of outer darkness—where every road leads away from safe, normal Earth, toward—Outpost Infinity!***

# A Novel by RAYMOND F. JONES



In the Raft, Mayhew waved reassuringly. . . .

## CHAPTER ONE

### Beyond the Alephs

THE FLOOD of light within the Central Operations room of Trans-Astra fought back the night that pressed against the windows. To Sebastian it seemed as if all the black terror of the infinities were washing down, tearing at the Terminal to uproot that symbol of man's daring.

He shook himself and moved away from the black squares of the windows

overlooking the darkened city. Inside, the blaze of light was warm and comforting. And now the communications panel was brightening in response to his call to Tantalus. Peters, the Tantalus operator, appeared on the screen.

"Where's the Express?" Jack demanded. "Can't it ever leave on time? Did you let some dame who'd forgotten her poodle hold up the whole ship?"

Peters' face whitened, and for a moment he was unable to speak. "The Express left six minutes ago. Hasn't it—?"

The Operations Room seemed suddenly still. So this was it, Sebastian thought.

He glanced out again towards the ominous blackness of night that hovered over the Terminal. On the opposite side of the building he could see the vast landing area—still empty.

*Compensation,* he thought. *You can't forever send ships out into the utter unknown and always fish them back. There'll be losses until you know just* where *those ships are going.* Of course, Mayhew and the other high-powered physicists called such fears ignorant superstition. Sebastian was well grounded in theory, and only Carl Mayhew was a better technician than he, but he had always been haunted by the fear that they would some day be unable to pull back a ship they had sent into the black, unknown hole of the transfinities.

Now it had happened, and the Tantalus Express, with twenty-five hundred passengers and crewmen, was gone—simply gone.

Peters was saying, "Seventeen thousand light years is a long way. Maybe they'll show up. Six minutes isn't very long."

"Six seconds would have been too long, and you know it," snapped Jack savagely. "Check time coordinates with me."

Peters secured a section of his recorder chart showing the complex time-coordinate curves prior to and following the departure of the ship for Earth. As Jack read off his ordinates recorded on Earth, Peters called off the corresponding abscissa points on Tantalus.

"They check," said Jack resignedly. He had known they would. He knew also that there was no hurry to make the next move. There was absolutely no way of ever locating the ship and the twenty-five hundred men and women it carried.

But Mayhew would want to make an attempt at searching for the ship in the Raft as soon as possible. Jack ordered the Tantalus operator crisply, "Stay on call. We may want you later. That's all for now."

The screen darkened in the midst of the distant operator's protests. Why should he have to stay up the rest of the night? There was nothing he could do. . . .

Immediately, Sebastian put in a call to Mayhew's apartment. The chief engineer's face appeared almost instantly, as if he had been waiting for the call, but his eyes were still puffy with sleep.

"What is it?" he snapped. "Do you need me there?"

"The Tantalus Express—" said Sebastian. "Gone. We need you as fast as you can get here."

Mayhew's eyes cleared; and that was the only sign he gave. "Right." He cut off.

Sebastian felt better already. The responsibility was passing from his shoulders to those of the one man most capable of accepting it. And that load had weighed heavily on him.

Men sensitive enough to understand the full significance and responsibility of what they were doing could not long bear up under the strain of Trans-Astra work. That was why the early operators had been replaced by less sensitive men, to whom the throwing of a switch to send the great Express into the unknown was like running a streetcar.

But there had to be sensitive men in

key spots, men who understood as nearly as possible the exact limits of what they were doing. Sebastian was one of these. The operator on Tantalus who could throw a switch or repair an atomic motor, but who had absolutely no understanding of the transfinite, was the other kind. He could not see any reason why a ship on a seventeen-thousand-light-year journey should not take six minutes or sixty minutes instead of arriving instantaneously. And that was all to the good, for if he had possessed Sebastian's full capacity to grasp the situation, he probably would have blown his brains out for what he had done when he'd sent the Express into the transfinite—from which it was not going to return.

MAYHEW arrived at the Terminal in so short a time that it scarcely seemed possible he'd had time to dress. As unperturbed as if he were there only to replace a broken tube, he hung his coat in a locker and began to examine the records and meters that told the story of the functioning of the receiving equipment.

"I'm afraid you're becoming careless, Jack," said Mayhew as he bent over the records on a desk.

"What's the matter?" Sebastian's heart pounded.

"The guide beam. We've definitely established that a thirty-minute warm-up period is absolutely necessary for stability. Yet I see that you had the beam on only nineteen minutes before the Express took off."

"I won't say that it's not my fault," said Jack. "But that crazy dope on Tantalus was apparently asleep. I couldn't connect with him until nineteen minutes before takeoff, and—well, the charts seemed to indicate stability, so I didn't order him to hold the ship. Do you think that was responsible?"

Mayhew shook his head. "No," the chief engineer said. "It wasn't lack of stability of the guide beam, but this is an exhibition of carelessness. Where it occurs once it might occur again, or might have already occurred in some other detail. How would you like to transfer to the lab for a few weeks' rest?"

Sebastian sighed resignedly. "The bone heap, huh? I guess that's it if you say so. Anyway, my bi-monthly check is coming up next week. I guess the squirrel docs would have thrown me out anyway."

It wouldn't be so bad, Sebastian thought. The lab was a nice place to work and you didn't feel like a potential mass executioner every time you threw a switch. He'd never understand a man like Mayhew. Mayhew ran the whole show; the strain should have been greater on him than on anyone else. Yet he never showed any sign of it; he was always the same—irritable, but supremely sane.

Mayhew plowed further into the maze of operational reports. Sebastian left him as a newcomer entered the room on the far side, away from the equipment. He was talking to Bailey and Michels, two of the minor technicians, as Sebastian came up. The newcomer was Harris, from the ticket office downstairs.

"What can we tell these people?" Harris asked. "They're getting impatient and worried. I'm afraid there's going to be trouble if we don't explain the delay."

Sebastian went to the window and looked out over the ramp and waiting area before the huge enclosure where the Express should have been. Here were the usual crowd of newsmen, photographers, relatives, lovers and friends who greeted the passengers of every ship. But there was no ship bearing those they expected to greet—and never would be. In each of those lives out there, and less remotely, in thousands of others, a tragic blankness would forever exist because of the failure of the transfinite process to function one single time.

He realized suddenly: it was tragic not only because of that loss, but because it meant the end of Trans-Astra. His mind recoiled. A moment before he had felt regret over transfer to the lab. Why, in a week there would be no lab, no Trans-Astra! The public would never permit it to go on after this disaster.

He turned back to Harris. "I could tell you what to tell the crowd," he said, "but you'd probably better not tell it to them now. See Mayhew. It's his show now. Eventually the world will have to know the ship is never coming in, but perhaps not now."

Harris turned away and walked over to Mayhew. Sebastian wondered how far civilization among the far planets of the universe would be set back by the events of this night. Going back to the slow atomic-powered ships would expand the universe and shrink man's conquests to an infinitesimal fraction of what they might have been—if the transfinite had not failed.

MAYHEW showed his first sign of irritation as Harris came up. "What is it, Harris? Surely your department is enough to manage, or would you like to run this end, too?"

"I'm sorry, Dr. Mayhew, but that crowd out there is becoming, well—very ugly. I'm afraid there'll be serious consequences if we don't tell them something definite soon. I thought perhaps you could suggest—"

"Tell them the Express was held up on Tantalus. Does it take brains to think of a simple thing like that?"

"It's too late, Mr. Mayhew. We've already told them the ship departed on time. And they know that arrival is instantaneous. That's why they're becoming ugly. They're afraid. They're beginning to generate rumors—"

Rumors, Mayhew thought. Yes, there would be rumors; they dated back to the earliest days of transfinite experiments—ghastly rumors of horrors lurking in the *interim* just beyond the veil of reality, ready to lunge out upon an unsuspecting humanity if man were fool enough to rend that veil. He had fought those rumors long ago and knew he would have to fight them the rest of his life, until the nature of the *interim* was established in terms of physical experience.

"Tell them," he said to Harris, "that power troubles developed in the *interim*, that we are in communication with the Express and all aboard are well. Tell them I am leaving to enter the *interim* and supervise the repair work necessary to allow the ship to continue. Tell them to go home—that public announcement of the arrival will be made when it is possible to do so."

Harris stared in unbelief. "But you don't mean that, Mr. Mayhew. The *interim*—Rodney and Welcher—"

"—were particularly unfortunate. But we know a lot more than we did in their day. Now get out!"

Harris whirled away from the mounting irritation of the chief engineer, but halted at Mayhew's commanding "Harris!"

"Yes, sir."

"Who's aboard the Express? Anybody?"

"Everybody. That's what makes it so difficult. It's the usual week-end crowd. Governor Wesson of the Southern Sector. Susan Dawning, the actress; Jeffry Wicks and his uncle, Calvert Mason. James Darrell, the author—"

"Okay." Mayhew waved him away. He turned to Sebastian. "Who was master this trip?"

Jack glanced at the records on his own desk. "Drangue was handling the ship. He's as good a man as we've got."

Mayhew grunted in disgust. "A streetcar conductor! But that's the kind of men we have to pick to keep them from going

crazy after a couple of trips. All right, I've got all the information I can get here. The Express is out there in the *interim* somewhere, but in which Aleph is going to be a problem to determine."

"But you aren't going into the *interim* and—stop!" Sebastian exploded. "That would be suicide. Rodney and Welcher proved you can't wander around in the *interim* at will."

"Why do you think I've been working on the Raft for the past three years? You'll note that exactly two days after it is finished I have the first opportunity to test it in actual search for a lost ship. There's a neat problem in causation, and it can be handled by straightforward math if you can find a point to get hold of it. Try your hand at it while I'm gone."

SEBASTIAN walked silently beside Mayhew as the latter went to the other end of the Operations room. There, massive panels of intricate equipment loomed almost as bulky as the main transmitters and receivers of the Terminal.

This mass of electronic equipment was the Raft and its associated transmitter and receiver. The Raft proper was simply a huge mesh cage, a cube about twelve feet on a side. It was crammed with panel-mounted tubes, transformers, recorders, switches and a score of nameless pieces of equipment that had evolved from Mayhew's brain.

Above the Raft was a copper plate eight inches thick, and below it in the floor was a similar plate. Great cables snaked from these plates to the inwards of the massed panels surrounding the Raft.

"You're sure it will work?" said Sebastian dubiously.

"I know it. You watch for my call. We're being controlled by factors of causation that will make it impossible to fail —I hope." He grinned wryly.

Jack knew what he meant. Causation was still an infant science, but the implications already uncovered by it were staggering. There were indications that certain main lines of human endeavor were inevitably destined to succeed, and any effort that could be aligned to aid one of the successful event streams would be ultimately successful—though not always in the manner desired. There was some evidence that the implacable religious faith of some of the ancient saints was simply an intuitive half-understanding of the principles of causation. Mayhew firmly believed that the development of the science of the transfinite was just such a major success stream as causation indicated. Sebastian wondered if it were this firm conviction—this almost religious faith—that enabled him to bear the psychological burden of his position so successfully.

Mayhew passed between the panels and opened the door of the mesh cage. He settled himself in the control chair before the myriad meters and switches that controlled the functioning of the Raft. At last he signaled Sebastian with a wave of his hand. Sebastian switched on the transmitter, and from the depths of the equipment came the sounds of snapping relays and heavy plungers being driven home. Finally, the massive poles of the switch energizing the great copper plates crashed into their sockets.

Instantly, a white aura engulfed the Raft. Through it Mayhew waved reassuringly to Sebastian, then reached forward and threw a switch. In that instant, the Raft disappeared, leaving only the slowly dying aura to show that anything had rested between those burnished copper plates.

For a long time Jack Sebastian stood staring at the empty space. He had no way of knowing then that he would never see Carl Mayhew again, but as he looked out towards the vacant landing area of the Terminal, he was certain of it. That

emptiness between the copper plates was like a doorway into hell, that gateway to all the infinities of creation. And when he looked out into the cold darkness that bore unyieldingly upon the Terminal, he sensed that Trans-Astra had sent its last ship across the *interim*. The slow, clumsy, atomic-powered ships were already hissing through space in the background of his mind. They'd come back, because Carl Mayhew and the Tantalus Express never would.

## CHAPTER TWO

### The Wheel of Infinity

THE TRANSFINITE!

From almost the moment that ancient man learned to count, his mind leaped ahead in vain, metaphysical struggling to grasp the final number beyond which there were no numbers.

Infinity.

It was the ancient mathematician, Georg Cantor, who, in the nineteenth century, defined infinity and assigned a symbol to the number beyond all numbers.

Cantor appropriated the first letter, Aleph, of the Hebrew alphabet to define the cardinality of the ordinals in an infinite series. Aleph-Null became the first of the multitude of infinite classes, whose discovery was the foundation stone of a new and incredible universe.

Infinity.

Consider a number n. Now, n may be reached by a process of mathematical induction beginning with zero. That is,

0, 1, 2, 3, 4, 5, . . . n.

But not Aleph-Null, or $N_0$. It is the number of all the ordinals, and so cannot be reached by a process of mathematical induction. For:

$N_0$ plus 1 equals $N_0$.

$N_0$ plus or minus n equals $N_0$ (where n is any inductive number).

Likewise:

$N_0^2$ equals $N_0$; and:

n times $N_0$ equals $N_0$.

This somewhat astonishing arithmetic of the infinite was demonstrated by Cantor, but an even more incredible property was shown when he proved that among infinite classes a part is as great as the whole, and the whole is no greater than some of its parts.

Consider the class of integers. The obvious assumption is that there are many more integers, even and odd, than there are odd integers. But let the set of odd integers be counted by placing them in one-to-one correspondence with the set of integers:

1 2 3 4 5 6 ...
1 3 5 7 9 11 ...

It is obvious that under every integer, even or odd, it is possible to place an odd integer, and the process may be continued without end!

The set of integers is infinite, but, since it is possible to establish a one-to-one correspondence between the set of integers and a part of the set of integers, the two sets have the same number of elements, *the same cardinality*. This cardinality of both sets is Aleph-Null. There are as many odd integers as there are integers. The part is as great as the whole.*

Besides $N_0$, Cantor showed the existence of an entire series of Alephs, $N_1$, $N_2$,

*One of Cantor's greatest triumphs, however, came in proving that in spite of the unique arithmetic of $N_o$, there were classes whose cardinality did exceed $N_o$. The class of real numbers he proved to have a cardinality exceeding $N_o$.

The real numbers, composed of the rational and irrational numbers, includes the irrationals which are not algebraic as well as those that are. The former are the transcendental numbers, Pi and e being the best known examples, and almost the only known examples before Cantor's time.

It was known that the rational and algebraic numbers were denumerable, so Cantor had to prove that the class of transcendentals, of which only a handful were known, was too big to be counted by integers, that it had a cardinality exceeding $N_o$.

To his great credit, he succeeded in this, and the class of real numbers was found to have $2^{N_o}$ elements, which was easily shown to be greater than $N_o$.

$N_3$ . . . in an infinite series. It was never discovered, however, whether $2^{N_0}$ was one of the Alephs or not, but it was a very important concept to Trans-Astra, for it was the number of terms in a "continuous series" as Cantor defined it, and so was also the number of points in any measure of space, finite or infinite, or the number of instants of any measure of time.

An important corollary was that any finite measure of space or time has the same number of points or instants as any other finite or infinite measure of space or time.

With a sort of mathematical aloofness, then, the Alephs ignored the ordinary processes of addition and subtraction, multiplication and involution. But in the special case of $N_0^{N_0}$ an entirely new concept was created.

This new and greater number was designated by Cantor as C He never determined whether or not C was one of the Alephs, but he conceived the existence of higher and higher transfinite numbers created by repeated processes of involution, as $C^C$, etc.

Mayhew, very early in his career, established a proof that C was *not* one of the Alephs, and this led directly to the processes by which Trans-Astra operated.

It had always been assumed that there were infinite collections, and various ways of "proving" this were brought forth. But even long after Cantor, mathematicians feared that all such proofs were fallacious.

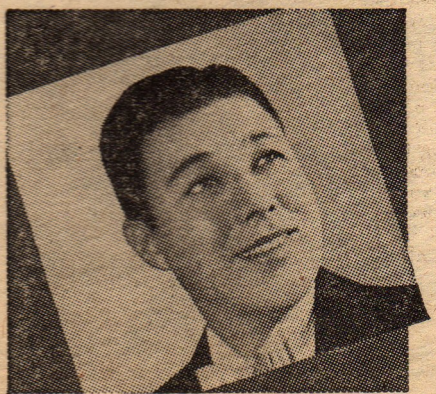
It was Mayhew who finally proved the real existence of infinite collects, yet this reality was as difficult for the layman to comprehend as was the curved space of Einstein.

Mayhew proved that the universe of man belonged to such an infinite collection, that Aleph-Null was the cardinal number of this collection. But this proof did not mean that a man could get in a spaceship and travel to another identical Earth somewhere if he went far enough. The members of this Aleph-Null collection to which man's universe belonged existed congruently and co-temporally in space, its properties being such that Aleph-Null appears in all calculations and subjective and objective observations as unity. For that reason, man was never aware of the multiple universe about him. It was impossible for him to observe it.

Impossible, until Mayhew.

Mayhew demonstrated the nature of C, and the existence of sets having this cardinal number. He did the original experimental work of electrical field transformation which made it possible for a member of an Aleph-Null set to transfer to a C set. Having gone that far, it was impossible to return to the Aleph-Null set, but at a different point than the point of origin. Thus began the revolution in interstellar transportation.

Within two years, Trans-Astra had



"Fit for a King"

says GEO. McQUEEN

NEW ORLEANS, La.—"That's why *I* switched to Calvert," says this popular singer. "And I'll warble praises for its milder, mellower taste *any* day. Calvert is truly the monarch of them all!"

CALVERT RESERVE BLENDED WHISKEY—86.8 PROOF—65% GRAIN NEUTRAL SPIRITS. CALVERT DISTILLERS CORP., NEW YORK CITY

wiped out the five-hundred-billion-dollar space transport system based on the slow atomic-powered vessels which had difficulty in attaining a velocity of even a quarter c.

But utilization of the transfinite was not without its drawbacks. The first experimenters who had personally gone into a C set or the *interim*, as it came to be known in transport jargon, were subjected to stimuli which no human senses could endure. There were no names for those stimuli. They had no parallels in human observational history. The men came back mad. They were Rodney and Welcher, and their fate remained a horror to deter all who would dare the *interim*.

It was determined that their difficulty had been due to stopping in the *interim* and also lack of proper electrical field protection to shield them from the unwanted stimuli. Actual transport of ships was now accomplished with a timeless interval within the *interim*. This prevented any results of the kind Rodney and Welcher experienced, as did also the heavy electrical fields protecting the ship. But the public still remembered Rodney and Welcher.

It had long been Mayhew's dream to explore the *interim*, and to this end he had designed the Raft, which bore heavy fields to protect the occupant. It was self-propulsive, once it left the set of Aleph-Null, and therefore made independent exploration of the *interim* possible.

Mayhew had also in the back of his mind that it would serve as an excellent lifeboat should a ship ever be lost. But that had never occurred since the beginning of Trans-Astra . . . until now.

AUTOMATIC controls were set to halt the Raft in the realm of C. To Carl Mayhew, transfer was instantaneous. It seemed like the sudden thrusting of a gray, translucent blanket over the Raft and the simultaneous removal of gravity. Nausea oozed through him and his senses rebelled against the blind, gray world that surrounded him.

He had no explanation for the phenomena of his environment, but he suspected that much of it was due to his protective fields and that it would have appeared quite different without them. He turned to concentrate on the instrument panel before him.

The method by which he hoped to locate the Express was simple in principle. The Express was lost somewhere in the infinities of space-times composing the C system. By sending a probing guide beam into each of these $N_0$ systems he would eventually obtain a response when his beam coincided with the beam constantly being emitted by the Tantalus Express. The Express beam could not possibly be inactive; it was a radiation induced in the metal of the ship's structure and would outlast the ship itself.

Since in any finite measure of time there were a greater number of instants than there were time systems in the entire C set, it became simply a problem of counting the $N_0$ number of time systems and identifying the one containing the missing ship.

He had the instruments to accomplish this. They formed an integral part of the Raft. By selecting a given measure of time—one minute, for example—he could place every one of the $N_0$ time systems into one-to-one correspondence with an instant of time within that minute. By so counting, he could determine the time system in which the Express lay.

Mayhew pressed the controls to begin the counting process. He was bothered less by the gray fog now . . . except when he thought of what it might be like out there without the protection of the Raft. It was not a healthy speculation.

Abruptly, Mayhew jerked his head towards the chronometer on the panel. Two and a half minutes had elapsed. The

counting process had passed through that many cycles.

Not a sign of response had come from the indicator.

Mayhew frowned. Closely, he watched while another cycle passed. He checked the meters. The equipment seemed in order. He switched off momentarily and then tried once again, never taking his eyes away from the meter that would indicate coincidence.

But that minute passed without response. He changed the counting cycle to occupy ten minutes, though he knew that was ridiculous from the standpoint of transfinite principles. One second would have been as adequate as an hour.

There was nothing at all.

Nothing but that gray fog and the rising, wavelike motion of the Raft that sent torrents of nausea through him. Failure stripped away his protective cloak of confidence.

This had been his only card to play, his ace in the hole, and he had banked on it with the confidence that the laws of causation were on his side, because he was in a success stream of endeavor. The implications of failure overwhelmed him. It meant that exploitation of the transfinite was not a success stream after all.

He did not know how long it might have been that he simply sat there staring at the panel with its dead indicator as the spatial counting cycle surged from one to Aleph-Null and back again, scores of times. His mind dropped its mathematical sophistication, and he thought in the terms his technicians used—lost in infinity. He was thinking of the twenty-five hundred persons aboard the Tantalus Express. They were as nonexistent as if they had never been born.

It began to ring through his brain—*lost in infinity—lost in infinity—lost—*

Then the full significance of that mathematically non-semantic term hit him.

Infinity.

That included the topmost limit of the limitless hierarchy of the Alephs. And he had been exploring only the infinitesimal fragment represented by C.

Normal operation of the Trans-Astra ships did not extend beyond C. But the only possible explanation for the facts before Mayhew was that the Express had somehow jumped beyond C into $C^c$ or to an even higher set. If that were true, the number of operations necessary to test for the presence of the ship would itself be an infinite set, possibly of the magnitude of C itself. A hopeless task.

But—it was just conceivable that the Express had gone no farther than $C^c$. He considered the problem of manipulating the Raft into that set. It had never been designed for such an operation, but he turned to the calculator built into the control desk and began pounding the keys in a bewildering stream of transfinite computations.

After an hour he was convinced that the Raft could be driven at least into $C^c$ and possibly one higher set. It was a start, anyway.

The changes in the circuits of the Raft involved only precise re-evaluations of the forces applied. Taking these values from his computations, Mayhew set them into the circuits. Then, without hesitation, he threw the controls that put the Raft into a cross-stream through the infinities.

THE SWIRLING gray universe congealed about the Raft as if it were a bug caught in amber. An hysterical claustrophobia seized Mayhew so suddenly that it was inside his mental defenses before he recognized the symptoms. His hands shook and he stood up to beat against that implacable prison wall of gray that extended to the infinite bounds of space. He felt that it would be horrible to die, as he was going to die, in this unknown prison beyond all normal human experience.

Then, just as suddenly as they had formed, the gray walls began to melt. Their substance flowed away like dirty ice melting in the rays of a spring sun. Mayhew collapsed in the seat and leaned his head on the desk of the control board.

He was weak and trembling from the hysteric seizure. He had never thought himself susceptible to such complete loss of mental control. The knowledge that any force could so overcome him was in itself shattering.

He began to understand what might have happened to Rodney and Welcher.

Like a clearing storm, the grayness vanished. His indicators showed that he himself was somewhere within a $C^c$ set, probably the first human being knowingly to enter the set.

He seemed to be in an illusory state of motion. He was in the center of a vast, shining green plain. In the distance, walls of flowing light rose abruptly and continued beyond his range of vision. The plain seemed to encompass the sum of all the infinite space through which he had passed. Yet the walls of flowing, spinning light that bounded it were within range of finite senses. Or were they? Perhaps his senses were now infinite, partaking of the characteristics of the set in which he was located. That aspect of the problem, the physiological effect, was one that the transfinite equations ignored.

But now the nausea, the fear, and the terror of the C set were gone. Mayhew relaxed his grip on the panel and stood up. If the Express were lost here, perhaps those aboard didn't *want* to come back, he thought.

It was an idyllic lotus-land. The peacefulness of that endless plain and the flowing light-falls washed away all care and uneasiness. Yet in the very peacefulness and contentment of it there was a certain hideous aspect that was alien to human senses. It was as if all activity, all desire had suddenly ended here in complete satiation and that it mattered not at all if he ever found the Tantalus Express or not.

He fought down the suggestion that crept into the cells of his brain, and increased the strength of the field about the Raft. He wondered if it were not entirely possible that those aboard the Express had been overcome by this stimulus.

He switched on the counter circuits, which he had revised to count the C sets as they had counted the Aleph sets previously.

As the circuit warmed up, the indicator needle suddenly swung over. Mayhew grunted with satisfaction. He was on the trail of the missing Express at last.

But his satisfaction died as he scowled at the meter. It had suddenly dropped back to a negative position, as if the Express had slipped out of the C set it had been in. The circuit returned to null and started the counting process again. Abruptly, there was a positive indication—but it was not in the same C set as previously. Then the contact was lost once more.

Sweat broke out on Mayhew's brow. The Express was moving transversely across the sets composing $C^c$. This was *the* insoluble problem. Two objects searching for each other, both moving, would never meet in any finite period.

Then he considered the problem more closely. If the Express passed through his own set just once, he could set off the arrival alarm within the ship by means of the guide beam. But how to make the Express pass through his set? He could send the Raft through the entire infinity of sets and the alarm would go off, all right, but Drangue would still not be able to get to Mayhew's set because it would be changing.

He put a recorder on the counter and observed the blips that indicated the ship's presence. After a moment he took renewed hope. Drangue was following a

definite sequence, apparently spiraling through the sets of $C^c$ hoping to hit his home Aleph. What he didn't know was that he was in $C^c$ instead of C.

When he was sure that he had the sequence plotted correctly, Mayhew set up the calculator to predict the future path of the Express. After ten minutes' work he had this determined. He moved the Raft onto a point on the trajectory and waited. Recorder pens now indicated his own position and the path of the Express.

For a seeming eternity he waited while the pens traced the collision course. And suddenly the lines crossed. Mayhew looked about, straining his senses for some manifestation of the Express. For an instant the counter needle pounded the pin madly, then abruptly dropped back to null setting.

They had missed. The alarm must not have gone off in the Express; or else Drangue was not in control and the ship was wandering helplessly.

He was about to shift the Raft to a new position ahead of the Express, but suddenly the line showing the path of the ship turned and slowly traced its way back to the line of the Raft's position.

Mayhew leaped expectantly towards his communication plate. The instant the lines touched he spoke into the microphone. "Mayhew calling Flight Thirty-one, Tantalus Express. Calling Flight Thirty-one."

The harried face of Drangue came into view on the screen for an instant, then faded. His lips moved as if in startled exclamation, but his image vanished before any word could be uttered.

Mayhew's fingers sought the controls of the Raft. Swiftly, he jockeyed the machine down the infinities, watching the lines upon the recorder. Once again the face of Drangue appeared, and Mayhew exclaimed, "Stop! Hold it!"

The image wavered, then solidified and held.

## CHAPTER THREE

### Tweedledum and Tweedledee

"MAYHEW!" Drangue exclaimed. "What's happened? Where are we?"

"Hold your position," Mayhew ordered. "I'll come aboard."

He looked out over the plains of light, wondering if the ship was in range of his vision or if he'd have to hunt through space for it.

He didn't. There in the distance it lay, like an angular blob against the distant shimmering falls of light. Though it was visible due to the characteristics of this realm of $C^c$, Mayhew suspected that the Express might be light years from him. He was certain that this peaceful plain before him constituted the entire range of $C^c$.

The Raft began to move slowly under its own power towards the distant ship. Mayhew's theory was soon confirmed. The Express was an inestimable distance from him. It grew no larger at all in his sight. He stepped up the velocity, utilizing all the power of the atomic engines in the Raft, until he gained a velocity of eight tenths of a light year per second. Only after minutes at this velocity did the Express begin to grow appreciably larger. Mayhew thought he had set some kind of a record for naked-eye vision. Oculists, at least, would find no business in the world of $C^c$.

The Tantalus Express looked nothing like a ship in the accepted sense of the word, any more than the Raft did. Rather, it looked like a moderately-sized, four-story building with rectangular floor area. Its façades of glass were lavishly ablaze with light, just as they must have been at the moment of takeoff.

As he approached, Mayhew could see the passengers gaping at the incredible world of $C^c$ and his own tiny Raft—which

must have seemed like some alien monster bearing down upon them.

He drew up at last to the main port of the ship and let the protective field of the Raft coalesce with that of the Express. It was, of course, impossible for human life to exist outside the protection of the ships. Mayhew wondered if it were cold or hot, airless or otherwise out there. But that was something man might never know. Instruments could not operate through the protective fields and without a means of correlation any independent data taken out there would be meaningless. But that was all another problem.

The port of the Express opened and Captain Drangue rushed out, a portly little man with a florid face and no imagination.

"Man, are we glad to see you!" he exclaimed. "We thought we were goners for sure when we just faded off into this stuff and didn't make the landing terminal. What the devil happened, anyway?"

"That's what I want you to tell me," said Mayhew. "Apparently something slipped and sent you into $C^c$ instead of merely transferring you into C and back again."

Drangue's face grew pale. "$C^c$! No one's ever been there before. Why it—"

"—isn't half as bad as it might be, is it?" Mayhew smiled. "It's just the crazy rumors about the transfinite that make people think there should be seven-legged dragons breathing fire out here. In fact, it's rather pleasant and peaceful. I thought at first that maybe you had all decided to stay here because it was nicer than Earth."

Drangue shuddered. "Not me. This business is just too weird for my taste. The sooner we get back to Earth, the better."

As they entered the promenade deck, they caught sight of a group of passengers. One of the men in the group was talking excitedly to the others and the confused state of mind of all them was evident.

"I'm sure glad you've come," said Drangue. "These people are terrified. Warren, the ship psychiatrist, says their emotional tension is approaching the danger point. Maybe your presence will drop it a notch or two."

Just then several of the group turned and recognized Mayhew. An excited, bald-headed man jumped in his path.

"Mr. Mayhew!" he exclaimed. "You'll never know how thankful we are to see you. Do you think you can get us out of this terrible predicament?"

"Probably in time for breakfast on Earth."

"How can you speak of food under these circumstances?" a middle-aged matron, obviously suffering from nervous stomach, spoke up. "I shan't touch a bite until this tragic business is over!"

A young man, obviously very drunk, staggered forward. "The great Mayhew!" he said. "Got's trapped out here an' now you think you can keep's happy with a big, fat, noble gesture! Nuts! Whyn't you tell's we're all's good's dead?"

Mayhew turned to Drangue. "Is this one of the local natives or did you bring him along?"

"That's Geoffrey Wicks," said Drangue sourly. "I've had to threaten to throw him in the brig twice already. Once he gets drunk it seems to be permanent. His uncle promised to—"

"I'm sorry, Captain Drangue." A gray-haired man came after young Wicks. "I left the door of the room open when I hurried out in the excitement of hearing that a rescue party was on the way. I'll be more careful until Jeff sobers up."

Though Mayhew had never met him before, he knew something of Calvert Mason. The man was one of the greatest semanticists of all time. But apparently even that didn't help him in rearing his nephew.

"Leggo me!" Wicks demanded as his

uncle grasped his arm. "Cut me outa y'r will—an' what good d'you think all y'r lousy money's gonna do now? Mayhew's got's trapped an' we'll all be dead soon."

"It's all right, Mr. Mason," said Drangue. "We're about out of the woods now, I think. Have you met Mr. Mayhew? He's our chief engineer, and the man who gets the rest of us out of trouble with this transfinite business."

"How do you do?" said Mason. "Will it be long, now?"

Mayhew nodded greetings and found himself liking the stolid, gray-haired Mason.

"It won't be long, Mr. Mason, I'm sure of it," he said.

AS MASON and Wicks broke through the crowd to get back to their rooms, a young woman placed a hand on Mayhew's arm. He recognized her instantly as Susan Dawning, singer and actress of the airscreens.

"I'm Susan Dawning," she said. "I want you to know that you can count on me for any help I can give." Her smile was something Mayhew thought he would remember all his life.

But he knew Miss Dawning—by reputation—as did practically every other citizen on Earth. Her current romances, a new one almost every couple of months, made headlines constantly. Mayhew had always thought of her as a very neurotic, unstable young woman, a type he disliked.

"Thank you," he said rather shortly. "But I'm sure we'll get along all right."

"Don't fool yourself," said Drangue. "Miss Dawning has been one of the company's most valuable assets since we became lost. She's kept up the morale of the passengers wonderfully. Warren says they might have gone over the danger line if it hadn't been for Miss Dawning. We'll owe her a great deal of thanks when this is over."

"I'm sure we will," said Mayhew. And Miss Dawning would have a considerable amount of new, free publicity, he thought.

With Drangue, he finally broke away from the crowd and made his way to the control room. He smiled warmly as he came in from the mezzanine that overlooked the huge lounge and promenade decks of the ship. There was Roberts, a youngster who thought he was going to burn up the universe with his work in transfinite mechanics—but who was looking very downcast now because of his inability to solve their problem. Roberts had good stuff in him, Mayhew knew.

There were also Kesserling and Wabell. Good men, but lacking Roberts' imagination.

"What's the trouble?" said Mayhew. "Have you found anything?"

Roberts shook his head dolefully. "I guess we ought to be back in some service shop repairing televisors. For all we know

about transfinite mechanics we could—"

"Don't worry," said Mayhew. "Better men have been stumped by easier problems. Do you know where you are?"

Roberts shook his head. "I thought I had it figured out, but we're lost, that's all. In fact, I don't even think we're in the right C any more."

"If you had the courage to follow through on some of your guesses you'd hit the right answer more often," said Mayhew. "That's exactly what happened. You went into $C^c$ and have been wandering around there. All your responses have been to other C sets instead of to Aleph sets as you thought. That's why your indications have been all jumbled up. We've got to go back into the C set first and then to the Aleph."

"How can we locate our own C? Is there any characteristic by which we can identify it?"

"We don't have to. They are all alike. There is a C set of identical C's. Any one of them will do."

"Hey, wait a minute," said Wabell. "We want to get back to our own good old terra firma, not some reasonably exact facsimile thereof."

Mayhew grinned. "I guess the human mind will never become adjusted to thinking in terms of transfinities. When we fix ourselves into one C set, the whole multiplicity of them will appear as unity, just as is the case with the Alephs. So we'll be in our right one, you don't need to worry about that."

Wabell frowned, then threw his hands up in despair. "I wasn't cut out for this kind of stuff. Give me some tubes and transformers and a little juice to shoot throught them and I can tell you what'll happen, but this—"

"—is all done with tubes and transformers and juice," said Mayhew, "plus a little unconventional math. The trouble is that math terms are the only ones that can be used to speak of the transfinite. Once you try to describe it in any other language, you're lost in a morass of inaccurate semantic jumbling that conveys no meaning. But let's be on our way back. Is the equipment working so that you can pass down to C?"

Roberts nodded. "I'll have the equations set up in a moment. How about your ship?"

"The Raft? It's tied onto the Express so it'll tag along. Go ahead. Let's see you get us down a notch."

Then Mayhew turned to Captain Drangue. "Better warn the passengers. This is rather unpleasant." He described the lower set, and Drangue nodded, stepping to the ship's communicator to carry out the request. He was barely through with the announcement when the vast prairie of light and flowing coruscations began to fade.

The congealed gray fog began to reappear, blinding the occupants of the Express to anything that might be outside. And as the stuff began to grow fluid and sweep by in great undulations of thickening darkness and light, it seemed that they might be at the bottom of a vast and infinite sea.

Mayhew could imagine the effect on some of the more sensitive female passengers down in the lounge as they gazed out upon that blind, impalpable waste. He was glad he wasn't down there right now.

"One more step and we'll be home," he said. "Hold it a minute, Roberts. I want to call Jack Sebastian at the Terminal and let him know we're coming in. Things weren't going so well there when I left. Some of the more irate citizens were about to take the Terminal apart because the Express was late."

He put through the call and watched the face of Jack Sebastian materializing on the screen. He looked sleepy and bored.

"Sebastian," he answered as the call came. "Who? Hey, Chief! I didn't recognize you for a minute. I thought you

were home asleep hours ago. What's up?"

"Asleep! What are you talking about? I've found the Express and I'm bringing it in. Is everything all right there?"

"The Express?" Sebastian's face wrinkled incredulity. "What Express are you talking about?"

MAYHEW swore ponderously to himself. The operations chief must have found the suspense too much and gone out for a bottle.

"Look, Jack," he said patiently. "The Tantalus Express didn't arrive tonight. It was lost in the *interim*. I left in the Raft and located it. I am now ready to bring it in. I want to know if everything is all right there to set it down in the landing cradle."

"Chief, listen—" Sebastian's face was pitiful now. "The Express *came* in—the Tantalus Express—it's been here for two hours. Look, you can see it out there now!"

Sebastian moved away from the panel so that Mayhew could glimpse beyond the windows of the Operations room to the lighted area outside.

And the Express *was* there.

Its lights were out and the huge ship lay motionless and silent as Mayhew had seen it so many times before. There was no mistaking it. The luxury liner was the only one of its kind.

"Chief, I don't get the gag," said Sebastian miserably.

"Jack," Mayhew answered in a low voice, "something's wrong. I don't know what it is, but there's something terribly wrong."

His words, and the tone of his voice, sent faint chills along the spines of those listening in the control room of the Express.

"Tell me if the Raft is there," said Mayhew.

"Sure it's here. You just finished it up. It hasn't been tried, even. . . ."

Mayhew turned away, his face utterly white. Roberts swallowed hard and opened his mouth to speak, then closed it silently. Drangue looked from one to the other in blank astonishment.

There was just one final horror to be encountered.

Mayhew spoke slowly into the communicator. "Jack, I want you to call my apartment on another line and see if there is any answer."

Sebastian obeyed without questioning. Mayhew turned aside to glance at Kesserling and Wabell. They were both in a complete funk.

Then Sebastian was back. There was the same kind of incomprehension on his face as was mirrored on Roberts'. "Mayhew!" he cried. "If this is some kind of a joke I think it's gone far enough. I don't get it!"

"Who answered at my apartment?"

"*You did*, of course."

Mayhew slumped visibly.

Sebastian was saying, "I can see you in both screens, Chief. Tell me what this is all about!"

"Let me talk to—" Mayhew glanced wearily about "—to myself," he said.

Sebastian hesitated an instant, then made the connection. Instantly there appeared a pajama-clad figure who was staring incredulously out at the men in the control room of the Express. And the man was Mayhew.

After a moment he chuckled. "I've seen some neat gags in my time, but this tops 'em. What goes on?"

"Tell me quickly—did the Tantalus Express come in on schedule tonight without any indication of trouble?"

"Of course. There was no trouble."

"You have the Raft ready for use?"

"Yes. What do you know about the Raft?"

"Plenty. But there's only one way of convincing you of what I know and who I am. Will you come to me on the Raft so

that we can figure out exactly what is wrong?"

"As far as I know nothing is wrong. Would you mind telling me who you are and what is the idea of this gag?"

"It's no gag. Do you realize who I am?"

"That's what I'm asking."

"I'm Carl Mayhew."

"And I'm Napoleon!"

"Tonight the Tantalus Express was missing. I went on a search trip in the Raft and found it in C$^{c}$. I called back to check before bringing the ship in—and I find you, or rather *me*, telling myself that the Express was never missing."

The second Mayhew chuckled again. "Amusing, but not quite convincing. Suppose you tell me just what you expect in return for this entertainment."

Mayhew cursed. But he couldn't blame his duplicate. That's the way *he* would act, confronted by such an impossible situation.

"There's only one thing to do," he said. "Come to me on the Raft for a conference. You can follow our guide beam here. I'll give you the figures when you get to the Terminal."

The smile left the face of the second Mayhew as the conviction came that he was talking with someone who knew transfinite operations. But the story of a missing Express in which *he* was supposed to be right now was too absurd.

"I don't know who you are or what your game is," he said slowly. "But I think I'll come out and see just how far this goes. If there's any monkey business I warn you you'll regret it."

"Stop being stupid! There's no time to lose. Get down to the Terminal and see if you can pick up my guide beam."

"I'm coming, and I'll remember that crack."

In the control room of the Tantalus Express there was an absolute silence, as Mayhew turned slowly to the others.

## CHAPTER FOUR

### Ulysses of the Stars

THE ALARM sounded. The five men straightened as if it were the clarion of some frightful ghost whose coming they waited, yet whose existence they could not credit.

"He's contacted the guide beam," said Mayhew. "Maybe that will convince him."

"Maybe it will convince *us*," said Roberts.

Mayhew switched on the communicator again and found himself looking into the control pit of the Raft—or at least *a* Raft. And there was his own image, more serious and thoughtful than before.

"I didn't believe it," the second Mayhew said. "I thought it was some crackpot practical joke, but there is a guide beam and it goes somewhere across the transfinite. Let me have those figures you mentioned, mister. I'm coming to visit you."

Mayhew grinned wryly and read off the settings that would enable the Raft to penetrate the C$^{c}$ region. Then he set the guide to bring the Raft up to the Express on the side opposite the first Raft.

"Come ahead," he said.

The panel image vanished instantly, and Roberts, looking out the port, exclaimed, "He's here! Mayhew, there's another Raft out there!"

Mayhew glanced at Drangue. "Get him, will you? I don't think it would be a good idea for the passengers to see the two of us together just now."

Drangue nodded and walked out.

No one spoke while the captain was gone. Mayhew stepped to the wide port and stared out into the impenetrable fog that was neither matter nor energy but only a blanking out of the senses as they failed to respond to the world of C in which the ship lay.

He was roused by a voice that sounded irritatingly sardonic. "Mr. Mayhew, I presume?"

He recognized it as his own voice, and turned slowly. The sudden, shocked expression that came over the face of the newcomer told the story of the mental conflicts within him.

"I didn't believe it. . . . Now I've got to," he said at last.

The man was Mayhew, to the last, tiniest detail.

"Are you really convinced now?" said Mayhew.

The newcomer sat down slowly and nodded. "I'm trying to tell myself I'm still back there dreaming and I'll wake up in the morning and forget all about this. Whatever it is—however you came to be here—bring me up to date."

"First, we ought to decide who's who. Suppose we call me $Mayhew_a$ and you $Mayhew_b$. Would that be satisfactory?"

"It makes no difference to me. I wonder, though, who came first, a or b?"

"That's the nub of the whole problem. But here's the way it is—"

$Mayhew_a$ quickly outlined his experiences and his attempts to bring the Express back to Earth.

"Is there none of that that fits your own experience pattern?" he concluded.

$Mayhew_b$ shook his head. "Not a thing. It's just as I told you before. The Express came in on time. All the passengers were present and unharmed. There was no indication whatever of anything wrong. The passengers and crew have disembarked and the ship is lying empty except for the maintenance crew readying it for the next trip."

"Well, we won't find the answer by talking about it. It must lie somewhere in the transfinite equations covering our presence here." He moved over to the giant calculator and sat down in front of it.

Rapidly, he set up the classical transfinite expressions governing the transport of an object from Aleph-Null to C.

"Now," he said, "what happens when we introduce a finite t into these expressions, instead of an infinitesimal time period?"

"Nothing," said $Mayhew_b$. "The expressions you have there do not govern a static condition but only the transient condition between departure and arrival. They become meaningless if you try to interpret any point on the curve as a static condition."

"Yes, I remember Hooper tried to develop such an expression and got nowhere with it. But how about the work that Rodney did? He developed a meaningful expression for C containing an element of N."

"It was never verified, though. If you expect to tackle this mathematically—and I admit there is no other way—you're attacking a problem that's baffled the best transfinite men for the last decade."

"What else would you suggest?"

"Nothing. Put down Rodney's expression below yours and solve them simultaneously for the N element. That ought to show you if the element will be duplicated. Then maybe we can find out what will happen to it when it is brought back to N."

$Mayhew_a$ nodded. That was a good attack. His fingers danced upon the keys of the calculator and slowly the ponderous expressions appeared.

While they worked, oblivious to their surroundings, Roberts and the two other technicians sat silently and motionlessly, watching the work that would decide their fate and that of every person aboard the ship. Once, Roberts wanted to inject a thought as he glimpsed the intent of the manipulation that $Mayhew_a$ was performing, but the work passed so swiftly before his eyes that the point was lost and he sat back, envying the swift flow of mathematical thought that was emerging from the minds of the duplicate engineers like crys-

tals born in the hot fires of some cataclysm.

Robert knew Mayhew with some degree of intimacy, and he was accustomed to seeing the chief working calmly without strain, producing intricate mathematical structures that seemed to leap into being almost of themselves. But now Mayhew$_a$ was tight-lipped, and stress lines were in his face. Only Mayhew$_b$ was calm and unworried. Regardless of outward similarity, there was surely a difference in the two men, Roberts thought. Mayhew$_b$ was more like the old, confident, sure Mayhew.

MAYHEW$_a$ suddenly observed an error far back in his manipulations and angrily wiped the board clean, then began over, piling up the incomprehensible structure of transfinite conceptions that would explain the presence of the duplications.

But shortly, Mayhew$_b$ stopped him and pointed out another error he had just made.

"We won't get anywhere this way," said Mayhew$_b$. "We need a slight drink."

"Drink? Not now—"

"Remember how we clinched the final dope that made the Raft tick? Two weeks of solid, bone-dry working without success, and then just one little Tantalus Special did the trick. Remember?"

Mayhew$_a$ suddenly grinned, relaxed. "Okay, pal, you win. Let's go."

The Mayhews rose, linked arms and went out the door. Drangue watched them go with an exasperated scowl. But Roberts had brightened perceptibly. "We'll get results now," he said. "That's the way it goes with Mayhew. I've seen him stew until he comes to a slow boil, then he tells the whole business to go to the devil and goes out for a drink. When he comes back, he's got it. That's Mayhew. Let's go down and have one on the house."

Drangue shrugged and followed him out. He had become convinced that this ship would be their eternal tomb.

The Mayhews made their way toward the bar, passing along the promenade deck.

Mayhew$_a$ observed the increasing stares. "We'd better say you are my twin."

"Why? Let 'em think they're drunk."

When the first Trans-Astra ships began to cross unbelievable spans of the void in an instant, something became lacking in space travel. Hence, aboard the Express the instant of time required for travel was distorted—for most, the illusion of a week's journey to Tantalus made a satisfactory trip.

In the bar the light was pleasantly diffuse and subdued. A dozen other people were seated about the room.

Mayhew$_a$ was well into his second Tantalus Special, and Mayhew$_b$ was beginning his fourth—evidently the differences in their recent lines had produced many temperamental dissimilarities—when their thoughts were interrupted by the arrival of a couple who came up next to them at the bar. It was Susan Dawning and a companion.

"I didn't know you were twins, Mr. Mayhew," said Susan. "Or am I seeing double?"

"No, there are really two of us. Identical twins. This is my brother, Mr. Mayhew."

Mayhew$_b$ nodded enthusiastically. "Identical twins—that's right. Have a slug of dishwater on us? Who's your friend?"

Susan Dawning introduced them to James Darrell, the author, and he was obviously neither charmed nor delighted to see either Mayhew, though he said he was.

"This all seems rather thrilling," said Susan. "I think it would help business if the company arranged for every ship to get lost. These trips become so boring."

Mayhew$_a$ growled his dislike for people

who were eternally "thrilled". "Suppose we don't get back at all," he said. "Would that be thrilling, too?"

"Well, hardly. But I'm sure there's not the slightest chance of that with Mr. Mayhew, the great scientist, taking care of us."

Then her eyes clouded with puzzlement. "But which one of you *is* Mr. Mayhew, the scientist?"

"He is," said both Mayhews simultaneously.

Before Susan Dawning could reply, one of the MC's came in from the adjacent lounge and spoke to her. "They're asking for you to come back and sing. They are some of the most unstable ones that Warren is concerned about. He thinks you're good for them."

"Of course, John. I should have known better than to leave."

The girl left her glass on the bar and followed the MC into the next lounge. Mayhew$_a$ paid no attention until he noticed his companion watching Susan intently.

"Let's go in and hear her," said Mayhew$_b$. "I've always liked her singing and acting, but I've never heard her in person before."

Mayhew$_a$ scowled. "That torch singer? She hasn't got the slightest suggestion of a brain. This is all just a 'thrill' to her and a chance for more publicity. Didn't you hear what she said?"

"It's funny," said Mayhew$_b$ slowly. "Now, I never suspected myself as being neurotic. Getting a look at yourself reveals things—"

"Who's neurotic?"

"You're taking things entirely too seriously."

"I just said that—"

"I know."

"Well, what's that got to do with it?"

"Miss Dawning seems to me to be a very competent and stable young woman," said Mayhew$_b$. "Let's hear her sing."

They wandered towards the doorway into the lounge where sixty or seventy of the passengers were gathered. Susan had already begun her song. As Mayhew$_a$ watched the passengers he could understand Warren's intense concern. Telltale lines of worry and fear were upon their faces. Here was the nucleus of panic that could sweep the ship disastrously.

But as the girl sang, he saw the lines of tension and fear relax somewhat.

This was a typical cross section of the passenger group. A dozen busines men on vacation; students; playboys; one or two old couples on anniversary trips.

Somehow, Mayhew$_a$ observed, the girl had the ability to reach them all. Her clear soprano voice had good musical quality, far different from that of many of her competitors. He watched the face of Mayhew$_b$ as Susan sang.

The other's face was lighted with enthusiasm and when she finished he clapped loudly. "That girl's got something," he said. "Did you watch the faces of those people as she sang? She's got something!"

BACK in the control room all traces of inebriety in Mayhew$_b$ vanished. He frowned as he watched the steady stream of metamorphosing equations pour forth under the fingers of Mayhew$_a$. Complicated transformations of transfinite expressions spread unintelligible configurations before them.

"Nowhere do you see an expression for a duplicate member of a set which has revolved through the *interim* and returned to its original set," said Mayhew$_b$.

"You know," said Mayhew$_a$, "this *could* mean that all of our past understanding of transfinite processes with respect to the operation of these ships has been fallacious. We've never really been sure of our interpretation anyway—in spite of what we've confidently told the public."

"So? Then what is the correct interpretation?"

"Suppose that the set *you* belong to is not the one from which this Express originated. These two elements originated in different Aleph-Nulls. Then it's possible that something was wrong and is still wrong, preventing this ship from getting back to its own Aleph-Null."

"Then that would mean that you and I are not exactly duplicates but individuals —and likewise for every other element of our set. It doesn't make sense."

"Wait a minute. Actually, there's no reality in the thing we're talking about—at least from the Aleph-Null viewpoint. But we know that from the Aleph-Null viewpoint all the sets of Aleph-Null appear as unity, just as in C all the sets of C appear as one. But from here we can understand that an Aleph-Null number of Aleph-Null sets exists, and in each of them are a Carl Mayhew and a Tantalus Express undergoing simultaneous and duplicate experiences.

"But suppose, now, that these Aleph Null number of Express ships left the Aleph-Null number of Tantaluses and started for their own Earths—suppose that one of them, this one, got sidetracked and couldn't find the way back to its own Aleph-Null set. So when I call you, expecting to find a place waiting for us I find that one of the other ships has already landed there."

"That would mean that somewhere there is an Aleph-Null set without an Express—and without a Carl Mayhew, or any of these other people—"

"Right. Hence the problem is still that of the needle in an infinity of haystacks, finding the one Aleph-Null set that does not have an Express."

"No—no—" Mayhew$_b$ suddenly stood up and strode around the room, thrusting his fingers through his hair. "Even if it happened that way, the guide beam from that particular Aleph-Null set would be reaching out and we could follow it in."

"Not necessarily. An Aleph-Null number of guide beams have been turned off. Subtract Aleph-Null from Aleph-Null and you get anything from zero to Aleph-Null. In this case you apparently get zero for some reason or other."

"The whole idea is nuts. Suppose it happened that way. You were back in your Aleph-Null of which there was only one perceptible because all the Aleph-Null sets registered as unity. All right, there were still an Aleph-Null number of Expresses distributed among the Alephs in the C set, so that from the Aleph-Null viewpoint all Expresses were present and accounted for."

"Uh-huh," said Mayhew$_a$, "except that you are forgetting the one Express that was in C$^c$."

"So what? Aleph Null minus one is still Aleph Null."

"If you follow that to its logical conclusion then we *are* extra and there is no Aleph-Null set to which we can return! Maybe what happened was equivalent to adding one to the set of Aleph-Null number of universes in which the transfer took place."

"Couldn't do. That would make it a separate and distinct entity, no longer possessing congruency with the other sets of Aleph-Null."

"Maybe that's why we can't find it. Somewhere there is this unique set with zero Expresses. And while, as Peano showed centuries ago, zero is a number, it is unique in having no predecessor. That fact would render this particular set unique."

"No. That's impossible. If it happened in one Aleph-Null set it would happen to all. There is no event that can be unique to one number of a set in that manner."

"I fail to see why not. You just stated yourself that the subtraction of one unit would not alter the cardinality of the set.

He watched Susan. Like a slim goddess in the sky she was hurtling above him in pursuit of a silver globe, and, suddenly triumphant, she seized it and bore it aloft in her outstretched hands, arcing through the heavens like Diana with her moon globe.

But what happens to this subtracted unit? It's got to continue in existence."

"Ah—there you have it, my boy," said Mayhew$_b$ in ponderous tones. "State in exact, semantically exact terms, the meaning of existence."

"Yeah," said Mayhew$_a$ dourly. "I know what you mean. But we still haven't got anywhere."

They dropped into silence; then Mayhew$_b$ said, "Frankly, I'm convinced there's no way out of it. I think I'm going to have to put up with you for the rest of my life. But don't think I'm going to split my pay check with you."

"Your paycheck! Now just who works for Trans-Astra?"

"That should make a neat problem."

"The situation is impossible."

"Right. But there's not a thing to do about it. We've got an extra ship. Perhaps there's a set minus one. If so, we'll never find it. Regardless, the only thing is for us to go back and take up our duplicate existences. We can't spend the rest of our lives out here, and you know perfectly well we'll never find the mythical set which is minus its Express."

"It'd ruin Trans-Astra. The question of splitting our—my paycheck would be insignificant. How about Governor Wesson, for example? He comes back and finds there's already a Governor Wesson occupying his office—not to mention his bed and board. What would his wife do with two husbands? In some cases the doubles might decide the world wasn't big enough to hold both of them. Take that guy Jeff Wicks, for example. His two halves would probably kill each other off."

"No loss."

"Maybe not. But a big stink. And how about two Susan Dawnings?"

"Now, brother, you're talking. I'm going to call Jack Sebastian and break the news about this business to him gently—unless you have objections?"

Mayhew$_a$ waved away the question. He was sick of the whole incomprehensible problem. He knew they couldn't take all these duplicated people back to Earth. Yet what else was there to do? Anyway it wouldn't hurt to let Mayhew$_b$ wrestle with the problem for a while.

In a moment the screen lighted and the face of Jack Sebastian appeared. He recognized Mayhew. "Hello, Chief. What's up?"

"I'm coming back—eventually, but there's—ah—a problem you should know about—"

"Back? Where've you been? I thought you said you were going to get a load of shuteye tonight."

The sudden silence within the control room of the Express was unbearable. The two Mayhews looked at each other and Mayhew$_b$ grew visibly paler. He turned again to the panel in fear and exasperation.

"Jack, don't you remember?" he demanded. "I took the Raft out to C to look for the missing Tantalus Express."

"I don't get this doubletalk, Chief. The express came in and the Raft is here—"

Mayhew$_b$ broke the connection.

"Now *you're* it," said Mayhew$_a$

## CHAPTER FIVE

### Tantalus

FOR A long time the Mayhews sat there looking at their equations and their fingers.

"Funny, isn't it?" said Mayhew$_b$ at last. "It makes you kind of homesick to think you can't *ever* get back to your own set, to the exact place and circumstances you've known all your life."

"Don't get lost in a bunch of nonsemantic nonsense. You know that statement has absolutely no meaning."

"And again, what is *meaning*?"

"Cut it out! Anyway, I think one of

my points is illustrated. Our contact between here and the Alephs is absolutely random. We are likely to pick any one of an Aleph-Null number of worlds. So the one you came from and the one I came from are not the same—"

"From the C viewpoint that is true, but they are the same from the Aleph-Null viewpoint, remember."

"No. There's a difference somewhere. It's obvious from the fact that the Express was missing from my set and not from yours."

They were silent again for a long time, each considering his responsibility towards the twenty-five hundred persons aboard the Express.

Mayhew$_b$ felt considerably sobered. Regardless of the intellectual interest he had previously had in the problem he had been merely a bystander; the Express had been no responsibility of his, because his set was complete. But now the impact of the knowledge that he, too, was a man lost from his own set jolted that attitude from his mind. The problem was a personal one, now.

"Suppose we land on some distant, out-of-the-way planet," he said at last, "and wreck the ship, telling the passengers it was accidental. It might not be so bad starting up a new world that way."

"That may be the only practical answer in the end," said Mayhew$_a$, "but I don't believe we have the moral right to make the decision. I believe we should try everything else possible first and then if we still fail we can put the problem up to the people—let them decide if they want to go back and try to live duplicate lives or go to some distant planet."

"Actually, I wonder if we still have any reality. I wonder if we are not just mathematical shadows—"

Their speculations were suddenly broken off by the entrance of Drangue. They had not seen him since they had previously left the control room.

"I've been looking all over for you," said Drangue. "I've just talked with Warren, the psychologist. He says that we've got to get out of here and go to some familiar place, and do it fast. The emotional potential of the passengers has accumulated to some high point on a scale that he has, which means that there's going to be assorted riots, mutiny and general bloodshed if we don't move out of this gray stuff."

"I've been afraid of something like this," said Mayhew$_a$.

Drangue said, "Warren suggested a return to Tantalus if we can't go back to Earth."

Mayhew$_a$ rose and went outside the control room to the mezzanine overlooking the main lounge and the promenade deck. From where he stood he could see little gatherings of eight or ten persons. He couldn't hear what they were saying, but in their sharp, nervous gestures he could feel the building up of panic. He had sensed it when he first came aboard, and down in the lounge it had been almost unbearable until Susan had quieted it. Now it was ready to spill over and wreak havoc aboard the ship.

He guessed there would be a storming of the control room with seemingly rational demands to know what was going on. Then there would be threats, physical violence, and finally would come general rioting.

He shuddered. Sometimes he wished he had gone more deeply into psychology. Certainly the complexities of the transfinite were no greater than the unknown realms of the human brain.

He returned to the control room. "It looks as if Warren's right. We can go back to Tantalus for a time. Perhaps that would be the most logical thing to do anyway. We can turn them loose among the Pleasure Regions and that should cool them off considerably. In the meantime, we may be able to work this out."

The eyes of Mayhew$_b$ were intent upon his as he uttered the last few words. "I wouldn't count on that too much," said Mayhew$_b$ slowly. "I'm convinced that the problem is insoluble. I'm serious in saying that we'll have to face the facts of our duplicate existence."

"We've got to give ourselves every possible chance to find an answer," said Mayhew$_a$ tensely. "We haven't done that, yet. Drangue, make the necessary announcements to the passengers. Tell them we have made sufficient repairs or something to enable us to return to Tantalus. Tell them that we will complete the work there and return to Earth as soon as possible."

There was a silence.

Dubiously, Drangue moved to do as he was bidden.

TANTALUS!

In scarlet letters the name stood out in space like a great neon sign a hundred thousand miles across. And it revolved slowly about the planet like the rings of Saturn.

The creation of Tantalus was the work of an interstellar council on recreation. It had come to the attention of the governments of the worlds that in spite of the social advancement of the past centuries the supplying of entertainment to the masses of the people was still a haphazard, unscientific and often dangerous process.

And so Tantalus had been built—a scientific dream world to serve the Universe. It was designed on psychological principles to relax and relieve, to fulfill in a socially desirable manner the unsatisfied and unattainable longings of the multitudes who sought its pleasures. A weekend on Tantalus, the Pleasure Planet, was guaranteed to renew the weariest of men.

Slowly, Roberts brought the great ship into the port of Tantalus as Drangue reported their emergency situation to the register clerk. He learned there were about thirty-six hours before the regularly scheduled run of the Express.

Mayhew$_b$ looked significantly at Mayhew$_a$ as Drangue reported the time.

"There's your absolute limit. Thirty-six hours. In that time you've got to solve some mathematical problems that haven't been solved in ten years of transfinite travel. It can't be done. And even if it is you don't know what the answer will mean with regard to this misplaced Express. Why don't you tell the people the truth? This double existence isn't going to be so bad. I'm even beginning to like you."

"I thought we settled that a while ago. You may like this double existence, but most of these people wouldn't. Come on, let's get busy."

The ship was always brought back to $N_0$ at a distance from Tantalus, so that the illusion of normal travel and arrival could be maintained. As Roberts lowered the ship into its landing cradle they heard the rumble of the multiple gangways being extended to all levels of the ship for disembarkation. The Mayhews resumed work at the calculator. The other four men in the room remained with them, but the passengers poured from the ship as if fleeing from some unknown horror.

As the hours lengthened and the natural night of the planet approached, it became obvious to both Mayhews that they were getting nowhere in their manipulations. They had succeeded in obtaining a static expression for an N element in $C^c$, but they had been unable to obtain any simultaneous expression for the condition of the N set with one element removed to $C^c$. And it looked very much as if the problem could be shown to be insoluble.

As they sat staring at the meaningless equations, the door of the control room slowly opened. In surprise, they looked up and saw Susan Dawning.

"I hope I'm not intruding," she said softly.

"I'm afraid you are," said Mayhew$_a$. "We're very busy. Will you please leave?"

"Just a minute," said Mayhew$_b$. He rose and extended a hand to Susan. "My brother's temper is a bit short today. We've been having a slight struggle with this broken-down buggy we're aboard. What can we do for you?"

"I don't know anything about the tremendous complexities of what you are doing," said Susan. "But I am aware that something extremely unusual has gone wrong—something you haven't quite told us the whole truth about. Am I right?"

Mayhew$_b$ nodded slowly. "You are very perceptive, but—"

"In which case the fate of all of us depends upon your finding the answer to the difficulty. You've been working steadily for six hours since we landed. I don't believe even your brains are capable of working efficiently at such a pace much longer. So I'm inviting you to take a little time off and join me in one of the Pleasure Regions—and perhaps dinner after. For the good of all of us aboard the Express, you understand."

Mayhew$_a$ began an answer that turned into a muffled explosion as Mayhew$_b$ cut him off. "That would be an excellent idea," the latter said. "I was just thinking that our brains had about ground themselves down to a slow stop. What do you say?"

Mayhew$_a$ made no answer for a moment, then he slapped the release key of the calculator board in a gesture of admitted defeat and rose. Their last two hours had been absolutely futile.

He nodded. "I guess we need it all right. Come on, you guys." He beckoned to the captain and the technicians whose silent presence he had almost forgotten. "Let's knock off for a while."

Outside, Susan said, "I don't know how in the world anyone ever tells you Mayhews apart. I wouldn't have the slightest idea whether I was talking to Mayhew the scientist, or Mayhew the —"

"Mathematician," said Mayhew$_b$. "But it isn't necessary to tell us apart. One will do about as well as the other in most cases."

"Except love."

"What?"

"Didn't you ever fall in love? It would make a difference then who's who."

"We're the bachelor type," said Mayhew$_a$. "Strictly the bachelor type."

SUSAN made no comment until they reached the checking center. "I thought we might go to the Music of the Spheres Region," she said. "Would you care for that?"

"That'd be fine," said Mayhew$_b$. "But

EAST ST. LOUIS, Ill.—"I *mean* it when I ask for Calvert," says Max Adelman, insurance broker of this city. "I switched to Calvert long ago, because I like its better taste. And with me it's the taste that counts."

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we'll have to get a psych check first. They might not permit it."

"Do I have to be checked again? I was just here."

"Yes. It's required every time you come."

A continuous stream of people was moving along the walks towards the psychological checking center, the only mundane note on the whole planet. Here each applicant for entrance into the Regions of Pleasure was checked mentally and physically, advised as to the regions he could enter with most benefit and prohibited from any activity that would be harmful. The checking was entirely impersonal and automatic. A machine made a rapid analysis of the brain-wave patterns, and rendered a form verdict based upon the analysis.

As the Mayhews came out of the checking booths they noted the list of activities approved for each of them. They had identical special analyses, a service rendered in particularly difficult cases.

It read: "Extreme tension exists as the result of conflicting drives, whose resolution appears as an insoluble problem. Psychiatric procedure advised. Advisable Pleasure Region sequence as follows: First day: Music of the Spheres, forty-five minutes; Gardens of Delight, optional time; Cafe of Heaven.

"Nice program they have outlined for us," said Mayhew$_b$. "I wouldn't mind going through the whole thing. It would probably do us some good. Apparently, we're more than slightly neurotic according to this analysis."

"Yes, but the program is laid out for a whole week and we only have thirty hours to stay here."

Inside the building housing the entrance to the Music of the Spheres Region, they were assigned dressing rooms where they donned the briefest of costumes to allow them the benefit of the radiation in the Region. Then they stepped onto the escalator leading up to the takeoff dais.

As they stood in line before the takeoff tube, Susan was first with Mayhew$_b$ and Mayhew$_a$ behind her. Watching his companions, Mayhew$_a$ decided that there could be no mistaking their response to each other. It was becoming intensified with every passing moment. And it mystified him. Mayhew$_b$ couldn't rationally consider the attaction of the actress as more than sheer biology. There was no question of her attractiveness from that viewpoint.

But she lived in a world that didn't exist for Mayhew$_b$, and she could never hope to gain any adequate conception of his. Her attitude towards men was certainly neurotic, considering the number of times her highly publicized romances had nearly—but not quite—culminated in marriage.

He didn't understand it.

Abruptly, they were at the head of the line. Susan stepped into the transparent, cylindrical chamber at the end of the platform. She put her arms above her head and waved gaily to them. Then she was gone as she shot upward with incredible speed into the pink light that bathed her from overhead.

The light vanished and Mayhew$_b$ stepped into the chamber. The process was repeated and he likewise vanished upward. Finally, Mayhew$_a$ stepped in.

He extended his arms above his head as the others had done. He glanced momentarily upward at the endless expanse that stretched above him, merging with the space in the cylinder until the cylinder appeared no more. Then suddenly the pink light flashed about him and he was soaring upward.

There was just an instant of vertigo; then it was gone and he was soaring upward on godlike wings into a vague, enormous space. There was light here, diffuse and without source, as if it were a property of space itself. As he sped

onward, the pink deepened and he felt the beneficent rays tingling against his skin, renewing his energies.

There was no sign of his companions. For a moment he drifted in solitude, his mind at peace. There were no bounds to the infinite depths about him. And in this world of light and endless space there were myriad, multi-hued spheres rotating and dancing about at random, like planets that had escaped the laws of celestial mechanics. He darted headlong towards one of the globes. It remained stationary until he was almost upon it and then it soared upwards and away, at the same time emitting a tinkling of elfin music from its depths.

He did not pursue the elusive sphere, but continued his headlong flight. Shortly the pink began to dim and darken and he found himself entering a region tinged with green. It was pleasant and soothing. He slowed his mad plunging through space and spiraled slowly into the depths of the green region until the color darkened like the depths of the sea.

Here in this quiet seclusion he came to rest and the waves of sudden music burst upon his senses. Low and almost inaudible at first, there was the sound as of some mighty, distant organ and he recognized the sound of its music: "The Sunken Bell."

He closed his eyes and rested, motionless and without burden in that sea-green space, and as the organ notes mounted to crescendo they burst over him with great waves of sound that rocked him with their might, bathing and cleansing his soul of its cares.

An eternity later the peaceful music broke into raw minor chords that roused him from his lethargy. Slowly but insistently, it impelled him to soar onward and seek other regions.

WITHOUT regret he resumed his flight, and presently came to an area of yellow where flaming fire seemed to hang in the space about him. The sourceless light flamed and died and burned bright again, challenging, exhilarating.

Many darting figures were visible now and he suddenly found himself near his companions. They were toying with the spheres, soaring after them amidst the thunderous, triumphal music that washed over them.

He watched Susan. Like a slim goddess in the sky she was hurtling above him in pursuit of a silver globe, and, suddenly triumphant, she seized it and bore it aloft in her outstretched hands, arcing through the heavens like Diana with her moon globe.

Impulsively, $Mayhew_a$ sped after a flaming sun globe. It leaped ahead of him like a living thing, and its fiery prominences lashed out at him. Willing himself to a titanic burst of speed, he caught the sun, and hurled it across the vault of space where $Mayhew_b$ soared.

$Mayhew_b$ caught the flaming sphere and darted exultantly after the moon-goddess, Susan.

In contrast to the world of sea-quiet peace that $Mayhew_a$ had left, this was a world of flame and violent motion where men were gods, at once omnipotent and all-wise.

Then $Mayhew_a$ watched the image of his duplicate soar to the heights where Susan's flight had carried her. He snatched away the silver globe and darted downward. Instantly, Susan swooped after him, as if she were Diana in pursuit of Apollo.

She caught up with $Mayhew_b$ and flung her arms about him in a wild, exultant embrace. And time seemed to stand still for $Mayhew_a$ as he watched the flight of the two figures. $Mayhew_b$ like some fallen god hurtling head downwards towards a flaming purgatory, bearing the treacherous goddess who laughingly clung to him.

## CHAPTER SIX

### The Face of Terror

THAT evening calamity struck as the three dined in the Cafe of Heaven. The menu was that prepared for those who had visited the Music of the Spheres Region and the Gardens of Delight. It was scientifically concocted to carry out the physical and psychological processes begun by these entertainment regions.

While they ate, they watched a three-dimensional televised show broadcast from Earth. Mayhew$_a$ watched it without attention until a sudden announcement startled him to alertness.

"Our next number is sung by the darling of the airscreens. We give you Susan Dawning!"

Instantly, a lifelike image of Susan Dawning appeared in the center of a bubble of light projected in the middle of the room. A song began in the well-known voice of Susan. It was a plaintive song about some forgotten love. But the first words were scarcely uttered when Susan stood up between the Mayhews and exclaimed, "That's an impostor! *I'm* Susan Dawning!"

Oblivious to the interruption, the image went on, but every eye in the room turned towards the figure in white who strode towards the center of the room and slapped her hand through the immaterial image.

"Stop this!" she demanded of the entertainment director, who came running forward to see what the trouble was.

Mayhew$_a$ groaned audibly. "The fat's in the fire." Then he looked at Mayhew$_b$. "*You* get it out," he said meaningly.

"Me? Why me?"

"Heaven only knows. But you've got the power. I didn't miss that scene in the Region. Get going before the whole thing is tumbling down on our heads."

Mayhew$_b$ nodded and slipped away to the center of confusion about the still singing televised figure.

He grasped her arm. "It's probably only a recording, Susan. Don't you recognize one of your own records?"

"Recording! I've never made one. All my appearances have been personal. I'll sue this—this—"

She stopped and gazed in horrified fascination at the singing form. The eyes, the hair, every gesture—and then she began singing in unison while the crowd in the Cafe stared in bewilderment at the twin figures singing their strange duet, one real, one an image of light.

When it was done, Susan said in a small voice, "It's *me*. Carl, it is. How—"

She stared past him to Mayhew$_a$ sitting like a stone image at the table they had left. Her gaze returned to Mayhew$_b$ and her hand suddenly raised to her mouth to cut off a sharp exclamation of horror. "No, Carl! That isn't what's happened—"

"Come on, Susan, please. We will give you all the explanations we have. Please come quickly and let's not make any more disturbance."

As if sleepwalking, she allowed herself to be led back to the table to Mayhew$_a$. Then, before any of them had a chance to speak, a new blast exploded in their midst. As the image of Susan Dawning finished another song, an announcer appeared.

"We have a news bulletin, ladies and gentlemen, reporting the tragic death of beloved Calvert Mason, well known philanthropist and Director of Semantic Relations at the Universal Embassy. Mr. Mason's body was found in the library of his home this afternoon with a knife wound in the back. His nephew, Goeffrey Wicks, is being held and has confessed to the murder, explaining that Mason had cut him out of his will and refused to

give him any more money for gambling debts. Not only tragic because it brought death to Mr. Mason, but because it is the first instance of murder in over a decade—"

Across the room a sudden hurricane of confusion began as Calvert Mason jumped to his feet and exclaimed, "What sort of preposterous nonsense is this?"

"Let's get out of here," whispered $Mayhew_a$ hoarsely. "We've got to get everyone aboard the ship and leave Tantalus."

"Carl—" Susan's face was white.

"Darling, there's just no time to explain now," said $Mayhew_b$.

They made their hurried exit from the building and ran along the gaily lighted ways that led to the ship. When they reached the control room of the Express Drangue was already there in a heated argument with Roberts.

"Mayhew!" Roberts exclaimed. "Am I glad you showed up! This—this trolley man insists that we should simply take off for Earth in the usual manner now that we're here. I've been trying to convince him that's wrong, but he insisted he was going to do it in spite of you."

Drangue reddened and looked flustered. "I didn't say that—exactly. I said this situation is no different than any of the hundreds of other times that we've been here ready to take off for Earth."

"Look, Drangue," said $Mayhew_a$ evenly. "It *is* different. Take my word for it if you can't figure it out for yourself, but the existence of us two Mayhews ought to convince you. On the Earth that belongs to this set there is a duplicate of each of us. We just saw the duplicate Susan and we just heard a news flash that Jeff Wicks killed Calvert Mason—the Wicks and Mason on Earth, that is. The noncongruency of events is beginning to catch up with us."

"Then what are we to do?" pleaded Drangue. "We just can *not* go back."

"For the time being I want you to issue a call for every passenger and crew member to report back immediately and we'll take off as soon as they're all aboard."

"For where?"

"We'll tell you later. Tell them the ship has been repaired and we are ready to take them to—their destination."

The Mayhews left Drangue to carry out the orders and sought an isolated spot in the ship. There, they stood looking out over the vast expanse of buildings containing or leading to the various regions of pleasure. The passengers began to stream back towards the Express as Drangue's message went out.

"About Susan," $Mayhew_a$ said suddenly.

$Mayhew_b$ turned slowly. "What about Susan?" he said.

"It's—well, it's just not *Mayhew.*"

$Mayhew_b$ looked out over the city, then back at $Mayhew_a$. "It's going to be hard for us to get along in some ways. Probably the best thing for us to do will be to separate. We're always going to be figuring out what the other guy ought to say and think and do. But it can't be so. We've split like Siamese twins and our differing experiences will eventually produce two entirely different human beings. What I'm getting at is that while Susan may be a pain in the neck to you, I—well, I'm going to ask her to marry me when and if we get out of this mess. To point out that she has proved herself the sanest one aboard this ship, that she has exhibited more stability and intelligence than any girl I've—we've—met before would be superfluous. Nor is it necessary to present psychological explanations for her highly publicized career in the past, though they exist quite adequately. In short, falling in love has never required an excuse, so I'm afraid the subject is just sort of taboo between us from now on. See what I mean?"

"Yeah—I see what you mean. You *are* different. Well, good luck, pal."

"Thanks."

THE PASSENGERS were streaming back now, some eager to get aboard in the belief that Drangue's message meant they were leaving for home, some reluctant to enter the ship of fear again. The Mayhews wondered what the reaction would be when the exact nature of their situation was revealed and each person knew that he would have to live in the universe with his duplicate.

They heard a sudden step behind them and Roberts found them in the semi-darkness by the window.

"I've been looking all over for you. I want to show you something after our little argument with Drangue. I think I've found a clue to the way out."

"Let's see." $Mayhew_a$ took the papers which Roberts waved excitedly. He scanned the transfinite equations.

"It's like this," said Roberts. "I've been trying to figure out why we were still duplicated when we landed on Tantalus. We know that we are in one of the Aleph-Null sets where we should fit in. Theoretically, since $N_0$ plus one is still $N_0$ we should not be duplicates now."

$Mayhew_b$ shook his head. "Your reasoning is wrong. We have just been thrashing out another point based on the same fact—the fact that divergent experience has destroyed our one-to-one correspondence."

"I know. After thinking about it I could see it was absurd to think that merely coming down to an Aleph-Null set would suddenly combine elements seventeen thousand light years apart. It would be a question of who would combine with whom, and how would they get together over that span of space, and a lot of other impossible considerations."

"Right."

"Okay. But now look. What would happen if we reversed our time coordinates to the exact instant when the other Express landed at the Terminal after the original departure from Tantalus—what would happen if at that precise instant, *we* also returned to the Terminal?"

For a moment the Mayhews stared at the young technician in silence. At last $Mayhew_b$ said, "I don't know. Do your equations indicate an answer?"

"Yes. They indicate a reduction of Aleph Null to unity in the Aleph-Null set."

"That's to be expected."

"No, it isn't. Look what happens when we leave out the congruence of time and spatial relationship. That's what we have right now in our landing on Tantalus. We have gone into another Aleph set not identical with any previously known. It had to be that way because this set just didn't exist previously with duplicates in it. Our coming has created a whole new universe!"

"Let me see those figures!" Both Mayhews bent over the sheets intently in the dim light and pondered the equations and their tremendous implications. It certainly looked as if Roberts' work was pointing the way out.

$Mayhew_a$ finally said, "It's worth a try. We can't lose."

"How about the position of the people within the ship?" asked Roberts. "It would be hopeless to get them individually in the same positions. I've been trying to figure out the results both ways, but I can't see it."

"It wouldn't make any difference," said $Mayhew_b$. "Equation one twenty-three there shows that it's not the material elements of the ship in relationship to each other that matter but, rather, the position of the field that the entire structure represents. If that coincides with the other field, unity will result."

"I'm wondering what will happen to *us,*" said Mayhew$_a$, glancing at his double.

"Why, there will continue to be two of us," said Mayhew$_b$. "Equation two forty-one here allows for the substitution of duplicates from other sets without reduction to unity. That's what will happen to us. Let's work it out in detail and see—"

He was suddenly interrupted by the hurried approach of Drangue. "Mayhew! Come quickly!" the Captain demanded. "Jeff Wicks has murdered Calvert Mason and escaped with Susan Dawning in one of the Rafts!"

Mayhew$_b$ leaped up, his face blanched. "Come on! We'll follow in the other Raft. Drangue—take the Express out to C set and wait for us there!"

Roberts and Mayhew$_a$ had difficulty in keeping up with Mayhew$_b$ as he sped down the ramps and corridors of the ship towards the port where the remaining Raft lay.

"All of us had better go," said Mayhew$_b$. "We'll need all the brains available to track them down. That fool Wicks hasn't the slightest notion of what he's doing."

Mayhew$_b$ took the controls; Mayhew$_a$ and Roberts took up their places behind in the small control area.

"Swing through the sets of C," suggested Mayhew$_a$. "If Wicks started punching buttons at random that's probably where he's roaming right now. Our only hope is that the guide beam doesn't fade out."

"It shouldn't. It was built to be as permanent as that of the Express."

"Jeff might find a way to kill it."

"He doesn't know that much about it. The fool must have been drunk or crazy to run off into the sets that way."

"You can be sure he was drunk—but I can't figure out Susan. Why did she run off with him?"

Mayhew$_b$'s lips were set. "Heaven only knows, but she had a reason. You can bank on that. I'd like to know where Jeff thinks he's going."

"I'd say that he doesn't," said Roberts. "Just panic flight reaction."

The others agreed, then fell silent while they watched the indicator as the counting of the $N_0$ sets progressed. After a dozen counting cycles, Mayhew$_b$ turned it off. "They aren't in an Aleph-Null set. You're probably right—he must have accidentally shifted to $C^c$."

"Set it to count the C sets."

Mayhew$_b$ rearranged the circuit configuration and resumed the operation of the counter circuits. They waited expectantly for the kick of the needle and the automatic indication of the set containing the Raft.

SLOWLY the knuckles of Mayhew$_b$'s hand grew white as he clenched the end of the control desk. The counting cycle passed without an indication of the vagrant Raft. Another cycle began and ran its course.

"The thing couldn't simply have vanished," said Mayhew$_b$. "It's got to be in existence *somewhere.*"

"Look," said Mayhew$_a$, "do you remember exactly how the controls were set up on your Raft when you left it?"

"Sure, they were set to count and find the set of the Express. No, wait a minute, the counting circuit was off because you gave me the coordinates and I simply followed the guide beam in."

"All right. Suppose Jeff got in and took a hasty look at the panel and saw the Start button. He would push it. Where would that take him with the setup you had?"

"Why—to the Express. In that case, he wouldn't have moved anywhere."

"But he did move. Where could he have gone then?"

"The Raft must have jumped a couple

of sets, but that seems impossible."

"Maybe not. The Express engines were idling, and for all we know they still contain the same defect that made the ship jump sets the first time. That might have caused the Raft to jump."

"Well, it's worth a try," said Mayhew$_b$. He reset the controls and returned the Raft to the side of the Express at the opposite port where the missing Raft had been.

He set up the board as it had been in his own Raft, then punched the Start button.

In that instant Mayhew$_a$ knew he had been right. A terrible crushing force bore down upon each molecule of his being with intolerable destructiveness. It lasted for only a minute, then they were at the bottom of a sea of blood-red liquid. The scarlet hue burned into their eyes even through their lids and the vertigo of weightlessness sickened them.

Slowly the Raft seemed to be rising in that eternal world of sickening red. It rose and the liquid thinned until it was no more and the Raft was on a vast sphere whose horizons were an infinity away.

"Mayhew! There's Susan!" Roberts' sudden exclamation whirled them about to face the direction of his pointing finger. But they could see nothing but the bright alien sky beyond the horizon.

"What are you talking about?" demanded Mayhew$_b$.

"I saw her, I tell you. She was standing outside the Raft for just an instant pressing her face against the mesh, begging to get in. Then she was gone."

Mayhew$_a$ felt a prickling cold wave traverse his spine. The higher the step in the hierarchy of the transfinite, the more ghostly it seemed. But it was impossible that Susan could have been out there. Life outside the Raft would be impossible.

"I tell you I saw her—"

Mayhew$_b$ set the counter in operation again, with the necessary adjustments, and it had scarcely been turned on when the indicator swung over and held steady on the pin.

"We've got them!" he exclaimed.

Swiftly, he manipulated the controls to swing them into the same $C^c$ set as the other Raft. As he did so, the needle swung back towards zero on the indicator, but the Raft had been set in motion to arrive at the selected set. When it arrived they saw their quarry in the midst of that great plain on the surface of the sphere.

But that was not what held them speechless. Mayhew$_b$ rose from his seat at the control panel and cried out, "Susan!"

The others pressed against the side of the cage.

For there upon that endless plain was Susan Dawning, but not Susan as they looked for her. As far as the eye could see there were infinite thousands of Susans running simultaneously in waves across the surface of that unknown world. And in the distance the Raft bearing Jeff Wicks was slowly vanishing from their sight—and from Susan's, for that was the goal of the running Susans.

There was something infinitely appalling about that expanse of Susans running with arms outflung towards the now vanished Raft. As the machine disappeared from sight, the figures stopped their mad flight and crumpled to the surface of the plain.

"How can it be?" gasped Roberts. "I don't see—"

"She's in a set below us," said Mayhew$_a$, "and somehow she's visible to us. We must be bridging the sets somehow. I wouldn't have thought it mathematically possible."

Then the Susans saw the second Raft and the endless millions rose and began running towards it.

"Carl!" The single word uttered from the Aleph number of throats produced a thunderous wave of sound.

"She can see us and we can see her," said Mayhew$_b$. "But how can we ever get to her? We can't possibly identify the set she's in even if we can see her, because there is no guide beam. I'm going out there with her."

Mayhew$_a$ opened his mouth to speak, then shut it as his face distorted with indecision. "I don't see how she got out of the Raft or why she left Wicks—"

Mayhew$_b$ slipped open the catch on the door opening outward, but a sudden change seemed to have taken place outside. The Susans were running in wild flight towards the Raft, but they seemed to be slipping farther and farther back on all sides as if they were running on a power treadmill that was carrying them backward.

Again that mighty, despairing cry rose from their throats. "Carl—help me!"

## CHAPTER SEVEN

### The Final Mystery

MAYHEW$_b$ leaped out and ran towards them. The other two men dared not touch the controls of the Raft, yet they could see that the machine must be slipping from its unstable position on the borderline between the sets.

Mayhew$_b$ grasped the hand of the nearest Susan and began dragging her towards the machine. In turn, she grasped her neighbor and a third was brought in tow before the chain was broken.

As if by the force of mighty will, Mayhew$_b$ seemed to be making headway against the unknown currents drifting against him.

"Give a hand!" he called.

Roberts stepped out to the tenuous substance of the plain about them and extended a hand to the struggling figures. Slowly they edged back. At last they were close enough for Mayhew$_a$ to reach out a hand while yet maintaining hold upon the Raft.

In a moment they were inside the cage and the door slammed shut. Almost simultaneously, the infinity of Susans vanished with a despairing wail. The plain became a barren waste of light and flowing, unknown forces of the transfinite.

No one spoke as Mayhew$_a$ stepped to the controls to bring them back to the Express. In the crowded control area of the Raft, the men were silent. The three Susans sobbed quietly, looking from Mayhew$_b$ to each other in desperation. Mayhew$_b$ impulsively reached out a hand to comfort the nearest Susan and the pain that came into the eyes of the others overwhelmed him.

Incredibly, the three identical girls remained as the ship passed through the infinite sets and shifted transfinities on the return journey.

Abruptly, Mayhew$_a$ uttered an exclamation as the Raft came out into a barren area. "Here's Tantalus. I thought the ship was still here, since we didn't detect it on the way down."

But apparently the Tantalus Express had left the Pleasure Planet to keep its rendezvous somewhere in C as the Mayhews had requested. Mayhew$_a$ drove the ship back up to the higher set and adjusted the counter circuit.

"It would be like that trolley conductor to get lost again," muttered Roberts.

The men kept their eyes upon the indicator, while the now-quiet Susans stared unbelievingly at their surroundings. "What were you doing in the Raft with Wicks?" Mayhew$_b$ asked gently. "How did you ever get out here with him?"

The girls looked at each other, then one of them spoke hesitantly. "I was kidnaped. Jeff was drunk or crazy—or both.

He said if he took me along no one would dare come after him because you—and I—"

"We won't have to worry about him any more, I'm sure," said Mayhew$_b$. To wander aimlessly through eternity among the infinities would be suitable punishment for him, Mayhew$_b$ thought. But what of the infinity of crying Susans lost in the eternal transfinite? Were they real? Did those cries of anguish he had heard have meaning? And what of the three who had been snatched into reality by the motion of the Raft across the transfinite?

He felt his brain involuntarily closing the portals of thought to these questions to which there might never be answer. He doubted that the mathematics of the transfinite would develop enough in a hundred years to answer them.

And that would not help the pain in his heart as he thought of the anguished cries of the lost Susans—and the problems of the three beside him. Suddenly the nearest threw herself into his arms and cried, and his arms folded about her, his eyes closing to the presence of the other two.

He was brought back to the urgency of their present condition by the muttering of Mayhew$_a$. "Ten cycles and no indication of the Express!" the latter said. "The thing is just lost again, that's all."

Suddenly Roberts spoke up. "I'll bet I know what that trolley conductor did! When you were on Tantalus he said he was going back to Earth regardless of what you said. That's what he's done! We'll never find the ship now, because it's taken up a duplicate existence in some Aleph-Null set, and we have no means of finding it again."

Mayhew$_a$ sagged back in the seat. The technician was undoubtedly right. Drangue, with his utter lack of imagination and knowledge of the transfinite, had carried out his threat and taken the ship to Earth.

At last he said, "Well, that leaves only us to worry about."

Mayhew$_b$ turned to the three girls and said, "Back on Tantalus I promised you an explanation of what had happened. I'm going to give you that explanation now and try to help you understand all its implications. On Tantalus you saw an exact duplicate of yourself doing a broadcast of your show. And here you see two men, my brother and me, who are actually one and the same man.

"Don't ask me to explain how that can be. It's only explicable in mathematical terms that a dozen or so men in the world can fathom. But just as Carl Mayhew has become more than one, so, likewise have you. And so has everyone aboard the Tantalus Express. It's a problem that no one has ever faced before. We thought we had an answer that would enable us to return to Earth as one instead of having duplicates there. But that involved machinery aboard the Express which we do not have on this little ship. Therefore, we've got to go back. Once there, perhaps we can do something about it, but for now we've got to face the fact of this multiple existence. Of all the people aboard the Express, you were the sanest in time of crisis, Susan. I'm depending on you to maintain that sanity now."

The girls nodded slowly, but in the eyes of each was the terrible question that lay heavily upon Mayhew$_b$. He had meant to ask Susan Dawning to be his wife. *But which of these—?*

Mayhew$_a$ said suddenly, "There may still be one chance. Drangue may not have done as we suspected. He may have slipped into a higher system as before. We may as well look as far as we can go."

Roberts and Mayhew$_b$ nodded, though they had little faith in their chances of finding the Express. They knew Drangue and his kind. He had been scared stiff through the whole experience. A final panic reaction had driven him to the nearest haven.

Mayhew$_a$ advanced the ship into C$^c$ and

let the counter circuits run through a dozen cycles. The result was completely negative.

"We may as well go to Earth," said Roberts.

"We hit a higher set once. I'm going to try it again."

He made some adjustments behind the panel, then sat down again and threw the power on. Abruptly, agonies of nausea seized them and they were at the bottom of the sea of blood as they entered the realm above $C^c$.

$Mayhew_a$ half expected, half hoped to see the endless expanse of crying Susans again, but he knew it was vain. There was utterly no chance of striking the same set where those figures had been encountered.

But $Mayhew_b$ and Roberts were staring at the indicator and shouting in spite of their sickness. "We've got it. There's an indication of the Express!"

They came to rest in the midst of that barren plain after rising through the sea of blood. And there in the infinite distances of this realm lay the Express.

With satisfaction that his guess had been right, $Mayhew_a$ stepped the acceleration of the Raft up to the maximum and slowly the Express grew as their terrific velocity brought them closer.

Roberts exclaimed. "Look! Jeff Wicks must be back—there's a Raft by the ship."

$Mayhew_b$ verified the fact. "I wonder how in the world he ever found it. Certainly he knows nothing of guiding the Raft, yet an accident of that kind is impossible."

"We probably won't have anything to worry about from him," said $Mayhew_b$. "I imagine he's in custody by now. Drangue would have sense enough for that, at least."

There was no sign of activity aboard the ship as the Raft approached. It drew up slowly and merged its field with that of the Express against a closed port of the larger vessel. Then $Mayhew_a$ opened the communicator circuits. "Drangue, this is the Raft. Mayhew talking. Open up."

In a moment, the screen in the Raft lighted and Drangue's florid face appeared. He stared and then his eyes went wide, and a hoarse exclamation came from his throat. "Mayhew!"

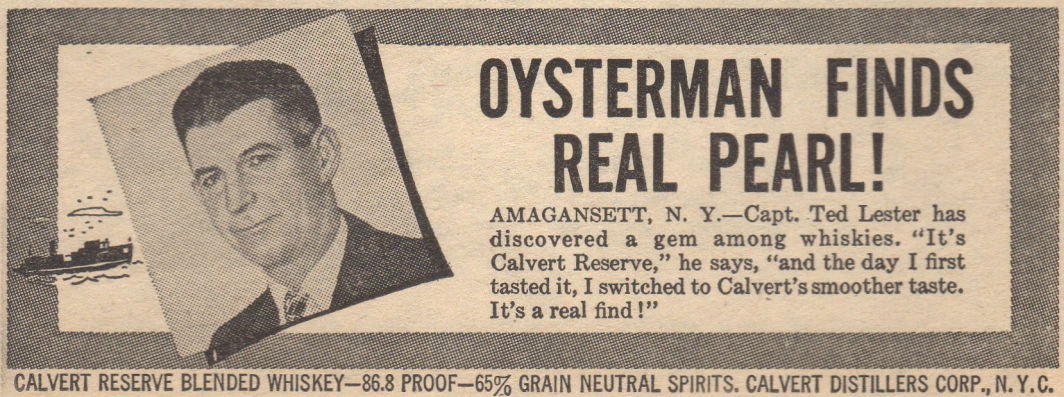
$Mayhew_a$ growled in disgust. "What's the matter with him, anyway?"

Then $Mayhew_b$ grabbed his arm and pointed toward the screen. "Look!"

There, staring in unbelief, was an image of themselves.

"Roberts was right," said $Mayhew_a$ slowly. "We've found the wrong ship. This isn't the one we were aboard before."

ADMITTED at last to the control room, they sat down and tried to comprehend this new situation. $Mayhew_a$ addressed the new Mayhew.



"I'm 'a'," he said, "and this is 'b'. For purposes of reference you may as well be 'c'."

"Suits me, but how many are there of us, anyway?"

"We'll never know, I'm beginning to think." Rapidly then, Mayhew$_a$ brought him up to date on their experiences. "What I'd like to know," he finished, "is where you and I separated. Did we originate in the same set and split later, or did we start out from altogether different Aleph Nulls?"

"We started out together, quite obviously," said Mayhew$_c$. "We split when the Raft found a guide beam leading to the Express. The Express itself exploded into a thousand sets. My—our—Raft responded to at least two, and possibly more. You went after one and I went after the other."

At that moment the door opened and a woman entered. Mayhew$_b$ rose with a start. His face blanched. The newcomer was Susan Dawning. She saw him first and came towards him with a smile.

Then Mayhew$_c$ said, "Just a moment, dear. These gentlemen are—ah—visitors."

The girl turned and gasped, her eyes glancing back and forth between the three duplicate men, and then at the three girls who were images of herself.

"Gentlemen, allow me to present my wife. We were married two days ago by Captain Drangue."

After the initial moments of confusion and surprise had worn off, they seated themselves about the table in the control room, three Mayhews, four Susans, and two Robertses.

"Our problem has not changed," Mayhew$_a$ began slowly, "despite the fact that the Express we were previously aboard has gone back to Earth in a set where its occupants will be duplicates. Nor despite the fact that there may yet be other ships like this wandering through the *interim* beyond our reach.

"Reality, for us, is that which can be perceived by our senses or brought into range of perception by mechanical means. We know that the multiple perceptions of C will reduce to unity in Aleph Null. The elements that have become unique: the other Express we know of, and those that may yet be lost; the images of Susan; Jeff Wicks—all of these must be considered to have no reality with respect to us when we return to Earth. It is the only way to keep our sanity, to consider it in this way."

He turned to Mayhew$_c$. "Our Roberts did some mathematical work that indicated an almost positive return to Aleph-Null in a unity condition. It involved the time mechanism of the Express. What work have you done?"

Mayhew$_c$ answered, "Our Roberts did similar work. We have nearly completed the adjusting and testing of the time circuits. It appears that even though we have lost congruency, there remains some similarity."

"How long have you been here?"

"About six weeks."

"There's a time difference. How did you keep the passengers from rioting?"

"Finally drugged them through the air system. We'll have to give them the antidote right away because we can make a trial return within an hour."

"The problem of the Express and its passengers in the set to which we return will be solved," said Mayhew$_b$. "I am confident of that, but for those of us in this room it will not be solved."

"Susan and I already have our answer for that," said Mayhew$_c$. "We decided even before you came that we would not go back."

"What do you intend to do?"

"Well, I've always had a hankering to quit Trans-Astra and get into research and consulting work—as you well know, of course. Susan is just a bit tired of show life, so what would be easier than to

just let the ship return without us? Our duplicates will be there to carry our work on and we will be free to do as we wish. We intend to take the Raft to Tantalus for a two-week honeymoon, then we'll probably come to Earth and start our new lives under some other names."

Mayhew$_b$ nodded miserably. "That's a nice plan, so simple and easy, but for me—"

One of the Susans put a hand on his arm. "I know what you're thinking, Carl. It will all work out in the end. I know it will. I've heard something of what has been discussed concerning change of experience producing change of individuals. It's obvious in you three Mayhews. We'll all go to Earth and take up individual existences. In a year's time there won't be three Susans for you to worry about—there may not even be one."

"Susan!"

"I'm beginning to think my first estimate was wrong," said Mayhew$_a$.

Mayhew$_b$ brightened. "Then maybe you—"

"Oh, no," Mayhew$_a$ replied in quick embarrassment. "Strictly the bachelor type—strictly."

The conference broke up. The wife of Mayhew$_c$ invited the three other Susans to come with her while work was resumed on the time mechanism of the Express. Drangue was ordered to administer an antidote for the drugs used to subdue the stupefied passengers who were moving slowly about the ship like mechanical men or zombies.

Mayhew$_c$'s estimate of the time required to finish the work had been generous. With all of them lending a hand, it was completed and finally tested within a half hour.

Mayhew$_c$ stood up and surveyed the intricate mechanism. "Well—that's that." There was an awkward pause as the duplicate Mayhews looked at each other. "I guess Susan and I had better get off so you can get on back where you belong." said Mayhew$_c$.

From the ports of the control room the others watched Mayhew$_c$ and his wife enter the Raft. They could be seen through the mesh roof, waving a gay good-by, and then suddenly they vanished, swallowed up by the transfinite.

"It gives me the willies," said Roberts, shuddering. "If I ever hear anybody mention the word transfinite after we get back I'll punch him one."

"Want to bet?" said Mayhew$_a$. "You'll be back on your old job at Trans-Astra within a week."

"Which one of us?" said the other Roberts.

"You could trade off. A week's work—a week's fishing. It would have advantages."

"We're all ready," said Mayhew$_b$ abruptly.

Despite their confidence, there was a moment's hesitation as they faced the test of getting the Express back to its own set so that it would combine in unity relationship with the Express from Tantalus.

"Shall we get the Susans up here?" said Mayhew$_a$.

"No—no, we may as well go as we are. We'll know in a moment if we're successful."

He threw the switches.

THE GLARE of light in the landing area bathed the Tantalus Express in a sea of light. Like some ghostly vision out of another world the ship solidified before the eyes of the hundreds of spectators, newsmen, and photographers waiting to greet those aboard the gigantic ship.

It was always a great thing to see the Express come in. It would never become a commonplace, the sudden appearance of this monster machine from seventeen thousand light years away.

From the control room Mayhew watched the crowds and heard the gangplanks rumble as they reached out in a score of places to permit the disembarkation of passengers.

They had made it, Mayhew thought. He submerged in his mind the dim questions of what was reality. *This* was reality, this Aleph-Null set in which he existed. There were no other Earths, no other ships like the Tantalus Express. This was reality. There was not even any other—

Mayhew!

His brain closed itself against thought under the impact of sudden realization. That Equation 241 that he had been going to follow up just before they left Tantalus—it had given him only the wraith of an idea of what would happen.

He was Mayhew. In his brain were the double memory patterns of $Mayhew_a$ and $Mayhew_b$ who had reduced to unity in the Aleph-Null set.

And Roberts was standing there, a single Roberts. "I guess we don't have to worry about being double, after all. Someday I'm going to find out what goes on in the transfinite—"

But Mayhew wasn't listening. He rushed from the control room. Out on the mezzanine he could see the streams of departing passengers. Most of them would put it down as a bad dream, he thought. Lucky that they had been in a state of stupefaction during most of the time in the *interim*.

Suddenly he glimpsed two familiar figures. Calvert Mason and his nephew, Jeff Wicks.

Should he warn Mason, he thought? But wasn't there in Mason's brain the memory pattern of being killed? No—that had been the other Mason, the one Drangue took to Earth.

Perhaps Jeff would not attempt to kill Mason as he had done in that unique set created by the appearance of the Express on its unexpected and unauthorized trip to Tantalus.

But nothing *he* could say or do would alter the course of events, he realized. He wished momentarily he had taken the course $Mayhew_c$ had followed. He hadn't realized the full extent of the difference between $Mayhew_a$ and $Mayhew_b$. His powers of adjustment would be strained to the breaking point until the conflicting viewpoints were reconciled or one of them became dominant.

He heard the sudden sound of running feet and turned to face Susan.

"Carl! Carl!" She ran towards him with outstretched arms and buried her face against his chest. "I'm so mixed up in my mind. Oh, tell me what it's all about, Carl."

She would be as confused as he was, he thought. More so, because she lacked his understanding of events. And within her brain was the memory pattern of the Susan who had come direct from Tantalus to Earth, the Susan who had fallen in love with $Mayhew_b$, and the trio of Susans who had been rescued from among the horde in the *interim*—

"It's going to be all right," said Mayhew softly. "I'll help you understand it all and it'll straighten itself out."

The consulting business was a good idea, he thought. $Mayhew_c$ would probably not appear in this set, so they would not run into each other. And there was still a Mayhew employed by Trans-Astra who was sleeping in his apartment, totally ignorant of all these weird and incredible happenings.

Mayhew suddenly drew Susan close and held her tightly in his arms. "It'll take time, but I'll help you understand those memories in your mind, and some of them will fade until they are only bad dreams."

For himself, his problem was solved, he thought abruptly. $Mayhew_b$ was going to dominate, by a long shot.

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*They knew now, too late, the reason the fourth planet glows crimson in the sky . . . for that same creeping death had come at last to their own world—to make murdered Earth a fit companion for—*

# THE FEAR PLANET

## By MURRAY LEINSTER

MAYBE the thing from the sky landed where it did because rain had fallen in Seco Valley for the second recorded time in sixty years. Or maybe that was only coincidence. The rainfall did bring Steve Hansun to the valley, though he hardly expected to find anything but sun-scorched rock and sun-baked sand and such impossible desert conditions that even lizards and rattlesnakes would stay away. *Seco* is Spanish for dry, and Seco Valley is hell on earth. Even Death Valley—forty miles away—is a place of lush vegetation and flowing fountains in comparison. But there had been a rainfall in Seco Valley, and for hours the parched, dust-caked rocks showed many colors and the sand drank greedily of pelting raindrops. For a space there was a steaming mist over the driest place on earth. Maybe the thing from the sky was drawn by that improbable wetness.

**As he tugged at them he felt crawling sensations next to his skin. . . .**

Maybe.

Steve Hansun heard about the rain after it happened. He was Research Assistant in the Arid-Area Plants Section of a college which shall be nameless. He was working on a possible variation of the prickly pear—it was to be without prickles—which could thrive in desert regions and serve as cattle-food without the necessity of searing the spines off each pod with a gasoline torch. He knew Death Valley, and Seco Valley too, and he'd made a bargain with a hard rock miner named Brady who stubbornly worked a claim some ten miles north from Seco Valley and seven thousand feet higher.

So . . . on a certain day the hard rock man, Brady, saw clouds banking up all over the area of which Seco Valley was a part. It was freakish. Presently there was a parting of clouds and Brady could see that rain was falling. Death Valley has rain—a good rain—as often as once in ten years. Naturalists and biologists gloat over the plants which spring up instantly after it and bloom for a couple of weeks before they shrivel and go back to dust in

Death Valley's normal dessication. But nobody had ever seen plants in Seco Valley. It *never* rains there. So Brady made amazedly sure that it was raining, and then headed across the mountains to keep the terms of his bargain with Steve.

That was Wednesday. He sent a telegram to Steve about the rain and got an answer as fast as the wires could bring it. Steve was on the way. That was Thursday. Brady hung around the town of San Felice waiting for Steve's arrival. That was Friday. Friday night the thing from the sky arrived.

It wasn't a thing that could fly, itself, though something that could fly must have been involved in its arrival. It appeared over Seco Valley by night, dangling from a slender thread which reached up through a cloud-bank, and up through the stratosphere, and on up past the tropopause, and nobody can guess how many miles beyond that. The thread was very remarkable. It wasn't more than a quarter of an inch thick, but it sustained its own weight in a length that would have snapped steel cable like string and it held up, besides, an oval, nearly globular object that was five feet in diameter and had windows and hatches underneath.

The ovoid shape came through the last layer of cloud in deep darkness. The clouds were higher than the mountains above Seco Valley, just then, but they cut off all sight of the moon or stars. The thing from the sky descended, and seemed to see the jagged mountain-tops. It may have had some sort of drive in it, permitting it to maneuver at the end of its string. It sheered away from the mountains and went down and down—bobbing a little as if its thread were slightly elastic—until it was a bare five hundred feet above the valley floor. There it paused, and presently dropped another hundred feet, and then a hundred and fifty, and then quite slowly until it hung wavering in the darkness not more than forty feet or so above the valley-bottom. There it became still, as if thinking deeply or preparing for something important.

Nobody saw it. The only human dwelling within thirty miles was Brady's shack, and he was over in San Felice waiting for Steve. Nobody heard it, not even lizards or rattlesnakes. There weren't any. There had been rain here two days ago, but no trace of moisture remained. There was nothing living in the valley.

There came a small noise in the air. It was a faint, wavering, far-away muttering that gradually increased in volume. It rose to a droning hum, and the hum became a growl and the growl became a roar. Then the Chicago-Los Angeles plane roared into view above the mountains to the east. It was well above the peaks, but barely below the ceiling of cloud. It was invisible, of course—merely a high-up bellowing of motors and two winking wing tip lights of red and green which swam toward the zenith while the thing from the sky hung motionless above the desolation of Seco Valley.

Up aloft, apparently, something happened. There was a momentary check, perhaps, in the sound of one of the four motors. But the plane did not check or swerve. A propeller hitting an impossible cord in mid-air and cutting through it with a whirling blade, might make such a momentary pause. But the plane drove on.

The thing from the sky, though, jerked violently upward. It lunged, and went careening off to one side, and then fell like a plummet to the floor of the valley. It crashed. Something crackled. There was a sound like an explosion, only wrong. It wasn't air, expanding from high pressure, but air expanding into a near-vacuum. Then there was silence, and then a hurried, pattering noise as thousands upon thousands of feet of quarter-inch line came leaping down out of the night sky. It coiled over the smashed ovoid. It went

wavering in huge loops and tanglings over a space a hundred feet across.

The plane's navigation-lights swam across the sky. They went beyond the western mountain-tops and vanished. The sound of motors went down from a bellow to a growl, to a drone, to a hum, and then to a faint, faint muttering. Then it could not be heard any longer. There was silence in Seco Valley for a long time.

Ultimately, something crawled painfully out of the smashed oval shape, and went around its outside. It tugged hopelessly at this and that. Then it waited, watching the sky. Nothing happened, though it waited by its shattered vehicle until almost daylight—until false dawn showed it the mountains all about.

But when dawn came there was merely a cryptic mass of plastic wreckage, and thousands of feet of plastic cord—and nothing else. And nothing living was to be seen in Seco Valley.

THAT was Saturday. Sunday morning Steve Hansun arrived, with Brady and two burrows and Bradys dog Gyp. They got to the edge of the valley while life in it was still conceivable—within an hour or two of sunrise. By eight o'clock the valley was warm, and by nine it was hot, and by ten it was like an oven heated by carbon arcs.

After that it really got torrid. It wouldn't have been a joke to fry an egg on a sunbaked stone at midday. It would have been a practical method of cookery if any man could imagine eating in such heat. There were mirages, and the rocky hillsides beyond the valley danced insane sarabands from the heat, and the fact that rain had fallen here seemed merely an historical oddity. It had nothing to do with present fact.

Steve Hansun hoped differently. Botanists still find it amazing that plants can live as bone-dry seeds in Death Valley for ten years, and then sprout and blossom and bear fruit and go to seed again after just one of the decennial rainstorms. Seco Valley was drier still. If Steve could find plants which had survived thirty years of absolute aridity: if he could find plants springing up in Seco Valley after rain, he would have made an important scientific discovery and could write a paper about it for a scientific publication which nobody would ever read. That was why he had come.

He saw the wreckage out near the middle of the valley. The two burros, then, were picking their way down a rocky trail that probably had not been used two dozen times since time began. Steve stared, and saw sunlight reflected from something polished, and a whitish indefinite something all around. He couldn't make out what he saw.

"What's that yonder?" he asked. "Could it be a crashed plane?"

Brady squinted, and said nothing.

"We'll take a look," said Steve. "There might be somebody still alive in it."

Brady didn't reply in words. The burros followed patiently to the valley floor. Gyp, the dog, sniffed at a sunbaked rock. But he'd been in desert country before. He restrained himself. The two men and the burros and the dog struck out across Seco Valley toward the wreckage.

The ground was uneven. They came upon wind-eroded boulders which barred their way. They had to back-trail and go around them. They came to dunes of powdery stuff and their feet sank into them as if into volcanic ash. By nine—when it was first really hot—they were only well started out from the valley's edge. By ten they were only part-way to the wreckage. The burros looked irritatingly resigned. Gyp panted heavily and his tail already drooped.

By eleven, the dog was utterly dispirited. He trailed the burros in bitter misery, loping gingerly across scorching

sand to find a bit of shadow where he could stand without singing his paws, and then looking miserably for another place to which he could make another dash. The sun was a ball of intolerable fire. Exposed flesh stung in full sunlight.

Steve said, "Nobody could live long in that plane."

Brady said, "Ain't a plane. I saw it clear awhile back."

Steve didn't ask what it could be. It was too hot to talk. As a botanist, he kept his eyes open for signs of vegetation. In Death Valley, the improbable dryland-plants appear as green threads on the third or fourth day after the once-a-decade rainfall. The rain here had been not quite three days since. Nothing showed, yet. But Steve watched carefully as he walked.

Everything was barren. Everything was dessicated past belief. The only sign of the rainfall was that in two or three places sheltered from the sun, the ground still showed the pittings of raindrops. Once, too, Steve dug at a hollow place between two hillocks. A foot down he came to very, very faintly dampish soil. He continued to dig, and a foot further down came upon dryness again. There was a thin, underground layer of moisture from the rain. Nothing more.

It was half past twelve when Brady came to a halt beside the thing they had headed for. He grunted expressively. Steve stared. It wasn't the plane he'd guessed at. He didn't know what it was.

He saw some thousands of feet of quarter-inch line. It wasn't woven of smal fibers. It was one fiber. He saw a smashed object he couldn't reconstruct in his mind, because he wasn't prepared to imagine a plastic globe of five-foot diameter smashed flat in Seco Valley. He did see some piles of spilled or dumped stuff that looked like ashes. Only he thought absurdly of seeds.

First, of course, he tried to find out if anything human remained in the wreckage. He found nothing except some plastic items which were rather like machinery—except that machinery isn't made of plastic—and were part of the smashed globe.

Gyp hunted for shade, and then suddenly began to growl. His growlings changed to snarling barks. He was suffering from the heat, but this was even more compelling. He faced an opening in the cryptic thing of plastic and snarled and growled and barked all at once, working himself up almost to hysteria. Steve bent over to look into the hole. It wasn't a big opening. Something could have gotten out through it, but nothing remained inside. As he bent over, staring, he caught a faint whiff of an absolutely indescribable odor. It wasn't pleasant or unpleasant. It was simply unparalleled. He'd never smelled anything even remotely like it.

"Brady!" he said, puzzled. "What's this smell?"

Brady came. He smelled. He grunted and spat.

Gyp backed away from the hole in the plastic, his hackles raised, snarling and barking and growling furiously. He found a trail. He trotted along it, making infuriated noises. He stopped and looked at his master. He forgot even his scorching feet. He made noises of unseemly indignation and rage.

"Now—what the hell?" said Steve.

Brady regarded his dog, frowning.

"Something he never smelled before," he said curtly. "Nor me either. That's the trail. Follow it?"

"It doesn't make sense!" protested Steve. "What's this thing, anyhow? And these things that look like seeds—"

HE PICKED up a handful from a pile. There was a tiny hard core to each one. There was a fluffy substance about the core, rather like a

strand of cobweb made frizzy and wrapped loosely around something.

They were seeds. Wind would carry them anywhere.

Steve frowned in concentration. He looked at the small, shining piles. Then he blinked and bent down.

The seeds at the very edges of the pile looked different, somehow. He picked up a few, with sand. From each seed a filament as thin as the thinnest cobweb, penetrated the sand. Gossamer seemed to trail from Steve's fingers. He knelt and dug carefully.

A foot and a half down he came to the ever-so-faintly-moistened layer which was the result of the first rain in Seco Valley for thirty years. He found something else there, too. Each thread of gossamer enlarged in the dampish soil into a root. The separate rootlets looked like worms, the color of beef-fat. And Steve knew what they were, but it took him time to believe it.

Presently he said painfully, "Brady, those things are seeds! They put a feeler down into the moisture, and they've started to grow. But there simply aren't any plants like those!"

Brady jerked his thumb at the line which was not woven or twisted, but was one single strand of a single substance.

"Ain't any rope like that either," he observed. Then he looked at Gyp. "Nor any smell like he wants to trail. Try it?"

Steve hesitated. He tucked a handful of the nacreous small seeds into an envelope and put it in his pocket. He examined the other piles. All were alike. He filled wide-mouthed glass specimen-containers with the seeds and capped them. He put them back in the burro-packs.

"We might as well," he said uneasily. "It looks like there was something alive in there, and it came out and has gone off. If doesn't seem like it could have been a man, though. It might have been a child—but that's not right, either!"

It didn't make sense. Not any of it. Brady poured out water from the supply a burro carried. He offered it to Gyp. The dog drank with feverish thirst. Then he licked Brady's hand and went back to the trail. Again he barked and snarled and growled at it.

The two men followed him toward the hills.

Brady frowned as Gyp went on over the desert, using bad language all the way. Gyp did not usually make such a racket on a trail.

Presently he led the men to a sheltered spot where there was shade. The surface of the ground was slightly crusted from the vanished rain, and there were tracks. More: something had rested on the sand.

Gyp barked and snarled until he seemed to scream hatred at the place where something, apparently, had lain down. Steve looked. Brady scowled.

"Just what," asked Steve, "would you say made that, Brady?"

"There ain't anything that makes that kinda trail, or that kinda print when it lays down," said Brady curtly. "I'd admire to see that thing. It ain't big," he added. "A forty-five bullet would stop it, sure. I'd like to look it over."

"No bird or animal or lizard," said Steve, as if arguing with himself. "It came from that—wreckage out in the valley. Hm . . . We'll track this down, Brady, but—we don't shoot too quick."

Brady grunted. They went on. At four in the afternoon Gyp was a badly whipped dog. He was beaten by the heat and the awful dryness. Steve had drunk two canteens of water, despite rigorous self-denial.

Brady had known what to expect. Each of their burros carried water as a full half of its burden. They could go a week and longer without coming upon a water-hole. But they were a silent, dogged crew, the two men and two burros and the dog, as they trudged across a waste of in-

candescent heat and sunshine, with a cloud of fine dry dust rising behind them.

They reached the far side of Seco Valley just at sunset. Glorious color filled the sky. Without a word, they began the ascent of the hills. Gyp could barely drag one paw before the other. Brady halted and gave him water. The dog drank as if he would never stop. Then he went back to the trail, growling again.

"Never seen him like this before," said Brady uncomfortably. "He hates whatever he's trailin'. He don't feel like that about mountain lions or anything else. What is it, anyways?"

Steve had been thinking. Seeds which lay on absolutely dry sand and put out threads as fine as gossamer, which wormed their way through a foot and a half of dry soil to find dampness, and there swelled monstrously to greasy-looking rootlets. There wasn't any plant like that. There were no such seeds!

And the smashed thing in the valley. It was artificial, certainly. But nobody would make anything like that. The rope —nobody *could* make anything like that. The scent of the interior of the smashed thing—vaguely, Steve was beginning to imagine it reconstructed into a globe—was so alien that there was no word for it. And Gyp—

"I've got a hunch," said Steve abruptly. "Stop at a level place, Brady. I'm going to put one of those seeds in water."

They were now perhaps two hundred feet above the valley floor. Brady halted. Steve went to one of the burros and got out a specimen-jar. He sloshed it half-full of water, and drank deeply of the rest. He reached in his pocket for the envelope of seeds he had brought. He tried to pull the envelope out. He had trouble. When it came, it ripped to shreds.

A tress of cobwebby threads stretched tenaciously back to his pocket. It was elastic. It was strong. Each thread was infinitesimal, but their total strength was great. As he tugged at them he felt crawling sensations next to his skin. He gasped suddenly and tore off his clothes.

The gossamer threads went through his shirt. Inside there were fat, worm-like objects which began in the fine, silky threads but were themselves swollen and like beef-fat in appearance. They were rootlets, each one developed from a thread cast out by a seed. Each seed in the envelope in Steve's pocket had put out a probe which had worked through his garments to the moisture next his skin. Every thread had swollen hugely in that moisture. Some of them were half the size of a lead-pencil.

THE SUN sank behind the mountains in a glory of rose and gold. Darkness flowed over the valley.

Steve examined his skin with fresh sweat starting out on him. But it was unbroken. None of the rootlets had made any attempt to secure moisture beyond what the unholy heat of the valley had made available as sweat.

Then Steve shivered, warm as it was from the sub-heated rocks about him. Without explanation he strapped his removed garments into a bundle and put on others from the pack. His face was pale.

"What now?" asked Brady laconically. "That trail's still good, but Gyp's pretty tired."

"I think we'd better go on," Steve told him. "I want to see whoever or whatever would travel around with seeds like that!"

Gyp lay down, panting, but when the men were ready to move on he got to his feet again. First, though, Steve dropped a seed from the sealed-up container into the half-filled jar of water. He capped it, and they climbed.

Gyp led the way unfalteringly, making angry small noises to himself. Night fell, and for a time it seemed that they might have to stop. But then the moon rose.

Gyp went on, spurred by rage. It was notable that the trail they followed did not climb up precipitous places. It went only where not only the men but the burros could follow easily. They climbed two thousand feet above the valley floor. Brady observed, there: "Never knew a wild critter to hunt so hard for easy climbin'."

"I doubt," said Steve, "that you'd call this creature wild."

"Tame, then?" grunted Brady skeptically.

"Not as far as we're concerned," said Steve.

"What in hell is it then?" growled Brady.

"If I told you my guess," said Steve, with care, "you'd knock me cold and sit on my head until you could tie me up to take me to a doctor. Let's look at the bottle I dropped the seed in."

They halted. Steve struck a match over the jar with the water in it. But there was no longer any water in it. The jar was filled with a ropy mass, coiled and curled and twisted into strained convolutions within the confines of the glass container. All the water had vanished. There was only a greasy-seeming root that looked like suet.

Then a rock stirred overhead. It came bounding down the hillside. Other rocks joined it. A minor landslide began. It grew to a major one. Brady lashed one of the burros swiftly over to the shelter of a shaft of stone. Steve followed instantly. The landslide roared by, its edges fifty feet from their place of security. Gyp screamed and howled his hate at the heights above them. The rock-slide reached a cliff-edge and poured off it into space. There were far-away crashings. Then, gradually, the sound ended. For a space there were only individual stones bounding and dancing after the others. Then silence.

Brady said, rumbling: "Rock slides don't often start at night. Mostly it's daytime, when rocks get het up an' slide."

"Something besides heat started that one," said Steve. "There'll be a break in the trail, I'm guessing. I think we'd better camp. And I think we'd better put Gyp on a leash."

It was all crazy, of course, but Brady turned aside. Here was as good a place as any for a dry camp. He began to unload the burros.

"Nothin' to make a fire with," he grunted.

"No fire," said Steve. "No light. Nothing. And we tie up Gyp, and if he starts to raise Cain we get up fast."

"You got something in your head," said Brady. "What?"

"Bats," said Steve. "Craziness. Insanity. Where'd plants come from that were so crazy for water they'd start as a bone-dry seed and go down a foot and a half to where it was moist? It'd take some evolution to produce a dryland plant like that! Who ever heard of a seed in a man's pocket boring through his clothes to sweat during an afternoon's walk? These seeds grew where it's really dry and water has to be grabbed quick! Where'd you say it was?"

Brady rumbled. He got out their blankets.

"What was that wrecked thing?" he demanded.

"Call it a gizmo or a blurp or a dohinkus," said Steve. "One name's as near as another. I doubt there's any name we'd know for it. What's your guess?"

"It hung down from that rope," said Brady, with an odd air of stubbornness. "It could ha' been somethin' danglin' from an airship. But why?"

"I'd hate to say what I think," Steve told him.

"Would it've been plantin' seeds?" asked Brady sardonically.

Nothing could be more unlikely or

more unreasonable than to plant seeds in Seco Valley. But Steve jumped.

"That," he said, troubled, "that's an idea. It may be true. If it is, it's bad!"

Brady tied up Gyp. Steve lay down in his blankets. His body was exhausted, but his mind would not rest. He lay wide-eyed, staring at the stars.

STEVE didn't know when he went to sleep, but he was wakened by a crash which sounded like an impact, and then the hysterical barking of Gyp, who flung himself around frantically at the end of his tether, trying to get loose to go after something up above. Brady was fumbling around.

"Mmmmmh!" he grunted. "Somethin' dropped a rock. Missed."

Another stone fell. And another. They were close.

"Me an' Gyp go up an' settle with that fella—"

"No!" said Steve, swallowing. "There's an overhang here. We move back under it. That's all. Just shift camp. I—I've got an idea. If we—caught up to our friend we might have to kill him, in the dark."

"He's tryin' to kill us!" growled Brady.

"I think," said Steve unsteadily, "that a revolver-shot would scare him away. Just the noise. Try it."

There was a pause. Brady frowned heavily in the darkness. Then his gun bellowed. A .45 shot is incredibly loud in the silence of the mountains. Echoes rang. But it seemed to Steve that he heard a high note that might have been a scream, save that it was so shrill that it was up at the very limit of audibility. Then Gyp went into a fresh frenzy, more terrible than before.

"He'll have run away," said Steve, as if unhappy. "I would, in his place. I—know more than I did before. He hasn't a gun or anything like it, or he'd have used them. He didn't expect to need one when he came. Reasonable, at that. And he knows we're after him." Then Steve said shakenly, "Poor devil!"

"What is it?" demanded Brady suspiciously. "A crazy guy? It'd have to be a crazy midget, by the size of the tracks an' the marks where he laid down!"

Steve said slowly: "Look, Brady! I—I made a guess down by that wreckage. By all the rules of common sense it was sheer lunacy. Everything that's happened so far fits into it, but it's still crazy. When I see that poor devil I'll tell you what I guessed, and you can laugh at me. But you'd be sure I was out of my head if I told you now."

Brady said stubbornly: "Whoever it was, he tried to kill us."

"And I wouldn't kill him for a million dollars," said Steve wrily. "I'm only afraid he'll make us—if I'm right. We trail him in the morning. We can take turns watching tonight, if you like, but I suspect that shot was a pretty bad experience for him. Anyhow he's unarmed and we've got Gyp. We'll keep Gyp leashed tomorrow. That poor devil is in the worst fix anybody could imagine, and he couldn't conceive of us being willing to be friendly."

Brady growled: "I'm gettin' an idea too. Okay. I'll play. But I ain't takin' any chances with him. And," he added deliberately, "I ain't spillin' my guess, either."

He lay down in his blankets. Steve sat up for a long time, looking at the stars. There was no alarm. There was no sound but the faint, faint humming of wind among the heights.

At daybreak, Steve examined the root-plant in the jar. It was no longer white. It was an unpleasant, tawny red. He opened the jar. Its interior was dry: absolutely, utterly dry. Every atom of the water he had poured into it had been absorbed by the plant growing from the gossamer-covered seed.

He felt the thing. Most of its weight

was certainly water, but it had no feeling of moistness about it. It felt almost powdery-dry. It was solid. When Brady sat up, blinking, Steve was staring at it, his face a study.

"Huh?" said Brady.

"This plant," said Steve. "It's absorbed all the water, and it's as dry and as hard as wood! There's an ethyl cellulose that makes a solid jelly with two per cent of solid and ninety-eight per cent water. That's considered remarkable. But what per cent is this stuff? If you baked this to dryness I doubt you could weigh the ash! This is a dry-land plant that's never been dreamed about before! It used up all the water in the jar. It turned red. Now it's set to bud and flower. It works fast!"

Then his eyes narrowed. His face went grim.

"I wonder . . . We've got to catch our fine feathered friend today," he said. "There's not much moisture where those other seeds are, but we can't give them time to seed! If he gives us the slip, I'll keep Gyp and camp by the wreck while you go on to San Felice with some telegrams." Then an idea struck him and he considered soberly: "Hm . . . There is a chance, at that. . . . But let's get going! Fast!"

BRADY frowned to himself. He was a big man, and he should have been clumsy, but he was amazingly efficient. Within minutes they were on the move, eating out of opened cans as they went up the hillside.

"We start trailin' from where those rocks were dumped on us," he said heavily. "We act careful when we get under places where more rocks could be dumped. Huh?"

"That's all," said Steve, absorbed in his thoughts. "If we see him and he shows fight, you fire a shot. Not at him. The noise will do the trick."

Brady said hesitantly, "Sound don't carry good when you get up real high. He ain't used to loud noises?"

"Not sharp loud ones," agreed Steve. He stared at Brady.

"Whistles carry better'n a yell, high up," said Brady, his forehead wrinkled. Then he added, "Gets cold up on a mountain-peak, too. But you can get a helluva sunburn when the air's so thin you have to boil a egg ten minutes to get it soft-boiled. This fella—uh—he'd be used to that kinda climate?"

"That—and worse," said Steve. He said after a moment, "He'd be used to air as thin as on top of Mount Everest. That's five miles up."

Gyp burst into frenzied barking. They had reached the spot from which rocks had been toppled on them. Brady held Gyp's leash.

"I—uh—I think I got it," he said slowly. "Y'know—uh—watchin' the stars

an' all at night, I got kinda interested, once. I bought some books about stars an' planets an' such. Heavy readin', but I made out. Interestin'."

Then he shrugged.

"I guess we're both crazy the same way," he observed. "Now, I kinda figure why you say 'poor devil.' He's a long ways from home. I won't kill him if I can help it."

They went up and up. Again the trail led only up the gentlest grades. The burros followed placidly. Gyp settled down to straining, bitter pulling at the tether that held him fast. They were three thousand feet above the valley, and then they were four thousand feet up. A tiny stone clicked on a hillside. Pebbles rattled down a slope. Steve jerked his eyes upward.

He saw a tiny shape, a thousand feet higher still. It moved with pathetic heaviness and desperate resolution. It was not a human shape.

Brady followed his eyes. There was silence. Then: "That's our friend," said Steve without elation. "He knows we're on his trail. And he knows what he tried to do to us. Maybe figures that we caused whatever happened to him. He tried to wipe us all out, you know. Wipe out all the human race. I—don't think he's managed it. But he'll expect to be killed. If there were only some way—"

Gyp let out a shrieking clamor.

The small thing looked down. Probably—very probably—it realized that the men saw it. But it did not hasten. It moved with enormous heaviness, with a terrible weariness, across a talus-covered slope.

"Maybe we can head him off," suggested Steve, watching.

"Safer to trail him," said Brady. How'd he try to wipe us all out?"

"Seeds," said Steve, wryly. "Those seeds are dry-land plants. They'd be like weeds, here. We haven't anything that could compete with them for water. The seeds would be spread by any wind. Only fifteen per cent of the United States is cultivated, anyhow. They'd get a foothold in our forests and deserts and the open range so we could never wipe them out. They grow too fast."

They went up a steep slope. The small, weary, unhuman object was out of sight. Gyp followed its trail, snarling ferociously.

"I keep thinking of him, though," said Steve irrelevantly. "Suppose your weight were suddenly doubled and you were dumped into air so thick and saturated with water that you almost strangled on it. Suppose you had the choice of staying in a place that to you was at least twice as hot as the valley down below, or of climbing mountains—with your weight doubled. Bad, eh? And then suppose you were unarmed, and were being hunted by things you figured would be merciless, and you had no hope of ever seeing another human being again— It would be bad. But that's what the chap up yonder is up against."

"I got that," rumbled Brady. "He's got a tough break. But what harm would weeds do? We got plenty now an' we get along—"

THEY turned around a projecting column of a cliffside. Gyp yelped. They followed inexorably, two burros and a dog and two men, after the unhuman thing that was weary to death.

"Weeds," said Steve unhappily, "are plants that can survive in a wild state and compete with cultivated plants. You plant vegetables in a field and go away. Weeds will choke them out because the weeds grow faster, seed quicker and more lavishly, and all the rest. Suppose plants like the one I grew in that bottle last night—suppose they started competing with our plants. They'd thrive in Seco Valley! They'd grow luxuriantly in Death Valley.

What'd they do on a fertile hillside or in a forest? If they took all the water, and held it, what'd happen to the grass and the bushes and the trees?"

Brady jumped.

"Mmmmmh! Like if prickly pear grew fast, crowdin' out everything else—"

"It's happened where they come from," said Steve somberly. "These seeds could cover our mountains. They could cover our plains. They could soak up all the rainfall that fell on mountains and hold it, so that our rivers would dry up and we'd have no water for irrigation. We'd have no pasture-land. Maybe—I don't know what they'd do to a lake. . . . Grow in it and turn it solid? Suppose seeds fell in the ocean! Would that turn solid? Plants like this would find all the minerals they needed in seawater. Maybe—that's what they did to the place this fellow comes from! Maybe that's why it's dry—all the water's locked up in plants like this!

"Maybe he and his kind want to turn our surroundings into the kind they can live in. If they figure that way and they're right, all they'd need to do would be to plant seeds! Our world would turn tawny-red instead of green. In a few years there wouldn't be any clouds. There'd be ice-caps at the poles, but no oceans or lakes or rivers. And there wouldn't be any people. This chap and his friends could just—move in."

Brady scowled. He stared at Steve, who looked sick instead of frightened. He looked unhappy. He looked utterly uncomfortable. But he did not look alarmed.

"Well?" said Brady pugnaciously.

"The plant I grew in the bottle," said Steve, "works fast. But it still hasn't seeded. I don't think it will, of itself. I suspect I can make it—and I suspect I'm going to, because it will be good business to have a source of those seeds. I *think* there's a very trivial item involved that our friend's friends couldn't figure on in advance."

They came out upon an open space where a great, bald, rounded dome projected from the mountain as a buttress to the monster still reaching thousands of feet toward the sky. This was five thousand feet above the valley floor. Beyond the great rounded projection there was a vista of space illimitable. Mountain after mountain and valley after valley.

But the two men had no eyes for it. They saw only a small, nonhuman figure in the middle of the huge gray dome. It was very much smaller than a man. It was grotesque by earthly standards and it was pathetic by any standard. It staggered as it moved out from the bulk of the mountain. It was exhausted, and undoubtedly it was feverish and enfeebled by temperatures which to it were incredible. And it was alone as no human being has ever yet been alone. It went staggering out from the mountain-flank upon this buttress, where there was nowhere that it could flee.

"Got 'im now!" said Brady. Gyp screamed and yelped shrilly.

"Barely able to walk," said Steve.

He stepped out in slow pursuit. He held up his hands in the universal human sign of peace. The thing stopped and stared dully at him, wavering on its feet. It was a bare quarter-mile away. Steve went coaxingly toward it, trying with infinite care to give the impression of peaceful intentions to a creature which had no single mental link with man.

The creature turned and shambled on. Steve halted. He called after it.

But the creature seemed to summon a terrible, an infinitely heartbreaking resolve. It lumbered into a wholly desperate and despairing run. The rocky dome sloped downward. The creature moved faster and faster. . . . The rock slanted down. . . .

Steve stopped short. But the creature could not stop. It stumbled and fell and

*(Continued on page 125)*

# A FRAGMENT OF DIAMOND QUARTZ

***Realm beyond realm of undreamed wonder opened before them in the fragment of diamond quartz . . . for here, concealed in infinite smallness, lay the answer to Man's every desire—for knowledge, for power, or—for death!***

THE SMALL piece of diamond quartz lay in the center of a slab of black marble, gleaming in the glare of the hooded laboratory light which hung directly over it. The rest of the room was in shadow, except for another single light over Dr. Lawton's work table, where his chemical apparatus was ranged in a complicated litter.

The last reaction was successfully completed. The last crucible, which he had scraped clean of the final intricate compound, still was warm in its rack. The little pellets, half of them dark in color, the rest a dead gray-white, were in two small vials.

In a chair by the table light, Dr. Robert Lawton sat with the vials in his hand. He was a big man in his forties, spare and muscular, athletic still from his college days twenty years before; a man with handsome, rugged features and gray hair.

It was odd, he thought as he stared at the small vials, that now with success came rather more awe than triumph. His father had said, just before he died three years ago, "In one way, it's rather like atomic fission, Robert. A thing that can be amazingly good, or in the wrong hands, diabolically evil."

Lawton's father had perfected these same drugs years ago. He had kept them secret, fearing them. And he had kept no record of their intricate compounding. Then, stricken with sudden illness, he could only outline the generalities to his son.

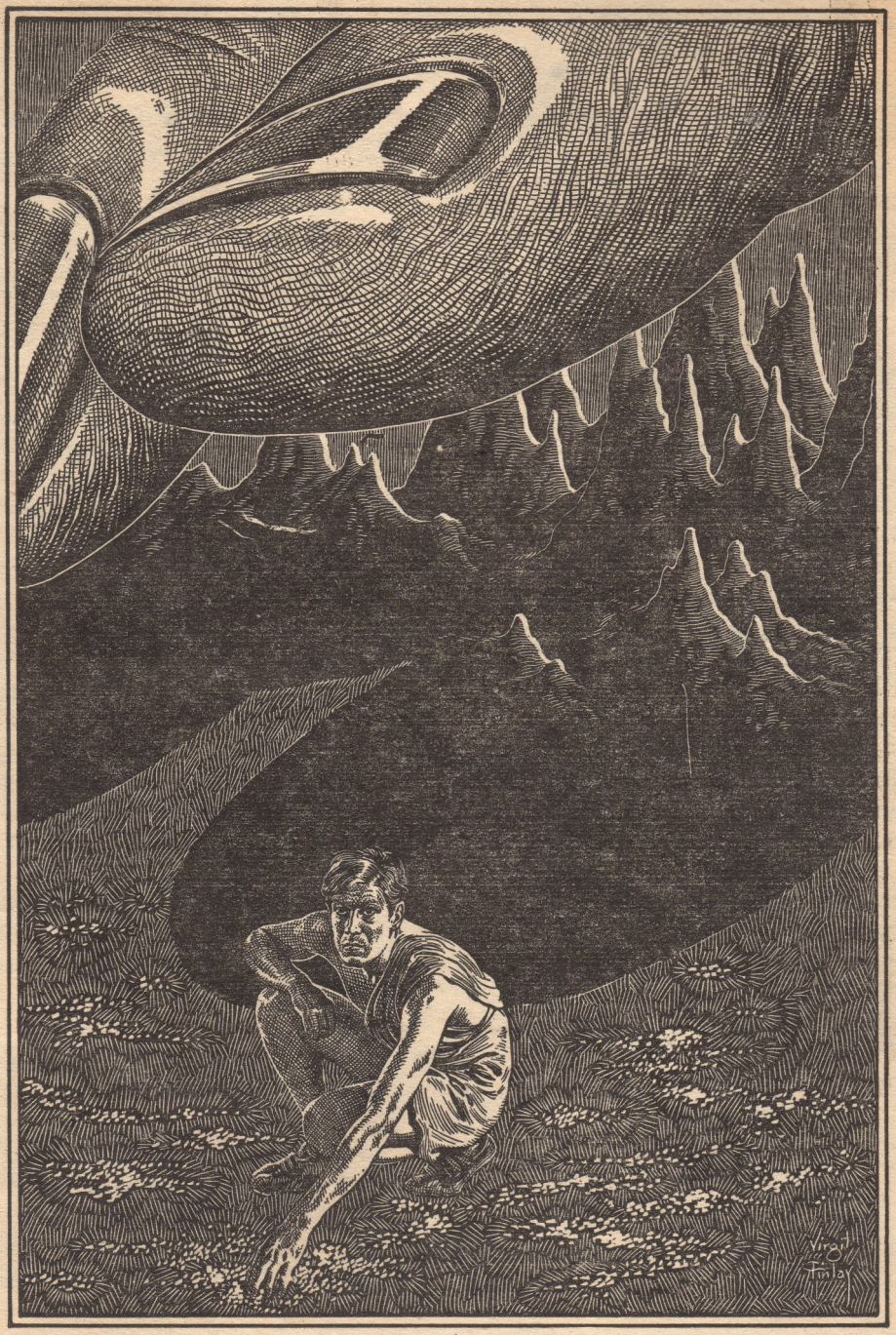
But Robert Lawton had re-created them now. . . .

A step outside the laboratory door roused Lawton from his thoughts. The door opened. It was his laboratory assistant, Jacques Toler. In the routine business of his work as consulting research chemist for several industrial concerns, Lawton had no secrets from Toler. But the creation of these drugs was Lawton's private affair. He had done almost all the work at night. He had not confided it to Toler, nor even to his young daughter Mary who, because her mother was dead, was his close companion.

"Oh, you, Toler." For an instant Lawton hesitated, with an instinct to send Toler away. But he had determined to test the drugs now; and somehow the awe

**Now for the triumphant return to his own world —to Mary. . . .**

By RAY CUMMINGS



of it made him welcome a companion. He added, "Come in, Jacques. What is it?"

Naturally Toler had been curious. Frequently, as now, he had come to the laboratory during the evening upon one pretext or another. Surprised at this welcome, he came in and closed the door behind him.

In the shadowed room, his curious gaze went at once to the hanging hooded light, gleaming down on the square of marble and the fragment of diamond quartz lying there. Jacques Toler was a massive, squat man, with shaggy black hair and bushy brows. Though he hardly looked it, he was ten years younger than Lawton.

"Oh," he said. "Why—you're still working, Mr. Lawton?"

"I'm finished," Lawton said. Again he hesitated. Then he said, "You're hoping I'll tell you what I've been doing, aren't you?"

His tone held amusement, but his face was solemn.

"Why, sure. I guess so," Toler agreed.

"I know I can trust you, Jacques. To tell you in confidence—"

"Trust me? Why not?"

Instinctively Lawton lowered his voice. "A thing which could wreck the world if carelessly or wrongly handled." Lawton's gaze went to the open laboratory window, with its vista of trees and soft moonlight outside. But now, at nine o'clock, a warm summer evening, only his daughter Mary would be likely to come here.

"Where's Mary?" Lawton added. "Have you seen her?"

"I think she went to the church, a choir meeting or something."

It would be eleven before Mary returned. Two hours. One might do amazing things in two hours.

Then Lawton was telling his assistant of this strange, weird drug which just a little while ago he had brought to completion. It was a drug which in effect changed the size of every tiny cell of any organism—changing its size without altering its shape.

"No one, least of all my father or myself," Lawton was saying, "ever could fathom the mysteries of nature. The mystery of growth itself—a gene, a single tiny cell, multiplied, compounded until there is an infant, a child, a man."

And now Robert Lawton had two drugs, the one an opposite of the other; one to dwindle a living thing so that, still preserving its identity, it would shrink into infinite smallness. And the other to bring it back to normal size.

"Or even carry it to the infinitely gigantic," Lawton was saying. His long lean fingers were fingering the two small vials. His lips curved with a twisted smile. "You see what I mean when I say it could be a diabolic thing? A giant, bigger than this room, this house, a mountain—or the world itself." He broke off. Jacques Toler was staring at him mutely. And then Toler said, "You mean—you figure on using this on yourself?"

Lawton nodded. He flicked his hand with a gesture toward the little fragment of diamond quartz. "My father was the pioneer," he said. "He avoided giantism. Alone, one night here in this same room, he went into that piece of quartz. . . ."

His father had made a brief trip; had returned prematurely, fearing that his enlarging drug might prove inadequate. But down in the realms of infinite smallness of the tiny piece of quartz, his father had come upon a jewel which he had brought back with him from that tiny world. "He called it a blood diamond—in effect a new form of carbon."

Now the little jewel was sparkling in Lawton's palm—a diamond of extraordinary brilliance with a faint ruby tinge like a little fire within it.

Toler leaned forward. "More valuable than our blue-white diamonds?"

"Probably so," Lawton agreed. "Father showed it to diamond experts, telling them

nothing. They were greedy for it, for others like it."

"And there are more of them in there, in that quartz?"

"Father thought so," Lawton said. "He died before he could explore further."

And now Lawton was determined to make the trip—to put his drugs to the final test. "With you," Lawton said, "if you want to come, Jacques. Or you can stay here and wait—"

But somehow Lawton found himself hoping that Toler would accompany him. The Unknown can be a horribly frightening thing, even to a man trained in cold, scientific logic. For a moment Toler sat mute, awed, staring.

"How do you know it'll work?" he demanded at last.

"We'll test it first," Lawton said. "And if we go, I want to do it tonight—now. Mary is away. I wouldn't want to frighten her—we can be back in an hour or two. She'll never even miss us."

"Test it?" Toler echoed.

Lawton had jumped to his feet. From a small box on the work table he produced a tiny green lizard—sleek little reptile about two inches long. He held it wiggling between thumb and forefinger.

"I figured we'd try the dwindling drug on this," he said. "And if it works—"

"I'll go with you," Toler said abruptly.

"Good."

THE HOODED light gleamed down on them as they held the lizard on the marble slab. Carefully Lawton nicked off a tiny fragment from one of the dark-colored pellets of drug. Then at last, the little reptile had licked out with its tongue.

"He ate it!" Toler murmured.

"Yes. And now—"

Lawton still held the wiggling lizard. And almost in a moment he could feel the change. Then they both could see it.

"It's getting smaller!" Toler gasped.

"Yes."

Then Lawton released it. The lizard had been two inches long. Now it was only one inch . . . half an inch. It stood for a few seconds wobbling; then it scuttled onto the marble slab.

"Look!" Toler breathed. "It's on the quartz—"

The fragment of diamond quartz was itself no more than a sparkling, irregular lump about two inches in diameter. Now the dwindling, tiny reptile was slithering on it, perhaps attracted by the gleam of the quartz facets. Or perhaps by sheer chance—

In that instant, Lawton had the vague impulse to try to knock it back onto the marble. But already it was too small, a tiny green moving speck in a ridge of the quartz.

"I can still see it!" Toler murmured.

"Yes—" But then it was gone.

IT WAS hardly half past nine when Toler and Lawton were ready. They had tested the enlarging drug on a little fly which, as it began to swell, they killed with a shudder. . . .

"Ready now," Lawton said. "We must take the drug simultaneously."

They sat beside each other on the edge of the black marble slab. Lawton handed his companion one of the little darkish pellets. On his tongue it dissolved with a swift, bubbling effervescence. It was sickish-sweet to the taste.

"Close your eyes," Lawton said sharply.

Even with his eyes closed, the lurching swoop of his senses was dizzying. He could feel Toler clutching him. Almost in that second the spreading drug was tingling his nerves like a tiny shock and fire all over him, as though permeating every smallest cell-fibre. Lawton steadied himself, opened his eyes. Beside him Toler was gazing past him with a dazed expression of unbelief on his heavy face.

"Weird," Toler murmured.

It was of course, quite what Lawton had steeled himself to expect, yet even so this reality was startling. Around him, the shadowed laboratory room seemed in motion, every line of it crawling, shifting, expanding. The edge of the work table, which a moment before had been a few feet away, now was drawing back and lifting. Everything was rising, moving away, growing larger. In all the swaying, shifting scene, only Toler beside him was unchanged. Relief swept Lawton. Both of them were dwindling at the same rate.

And around Lawton and Toler now was the faint violet sheen of the electronic aura which his father had explained to him the drug would create; an electromagnetic field within which all cellular structures would be affected, so that their clothes and objects in close contact with their bodies shrank with them.

An accelerating change. And suddenly Lawton was aware that he was *feeling* it. Under him, the marble slab-surface was shifting, drawing out with its expansion. His hand, resting on it, had drawn away from his side so that he had to slide it back. And the smooth black marble surface was turning rough.

"Our feet!" Toler abruptly murmured. "Why—why—"

It brought the dazed Lawton into full alertness. The marble slab rested on a bracket a little distance above the floor. As they sat on its edge, their feet had been on the floor. Now their legs were dangling, feet swinging in the air. The marble slab now had spread out to become a great shining black surface, broken by ridges and hummocks. Beyond it, the outlines of the laboratory walls and ceiling loomed in a gigantic blur, far away and high up. The hooded light was a great diffused brilliance above them.

"The quartz!" Lawton gasped. "We've got to get to it—quickly now!"

Across the gleaming black surface the quartz showed as a great lump of rock, a waist-high boulder; and as they scrambled up onto the slab, already it had drawn still further away and expanded. Now they were running on the shifting, enlarging ridged marble. The quartz was a jagged mass of rock when they reached it. Breathless, panting, they climbed with the rocky mass opening around and above them. Then at last they were atop it.

"All right now," Lawton murmured. "We can stand here a moment."

The top of the quartz was like a rock pinnacle. With the gasping, sweating Toler beside him, Lawton stood gazing down. Ten feet or so below, the black marble surface stretched away to the abyss at its edge. The laboratory floor was a shadowed blur far below. The work table, the wall behind it, the ceiling of the giant room, now were almost indistinguishable—fantastic, mountainous shapes in the haze of distance.

ABRUPTLY now, for a single instant, Lawton's awareness of realities shifted. He could picture himself and Toler as they actually were, tiny figures perched on the two-inch lump of quartz. But it was only for that instant; then again Lawton felt himself his normal six-foot height, Toler massive and squat and normal, standing here with him; and all the shifting scene expanding into new strange vistas. A little ridge of rock surface was down by their feet. Within a moment it had widened to a cleft, a shallow gully.

"It's changing even faster," Toler murmured. "Everything—faster."

"For a time, it will," Lawton said. It seemed incredible that only about five minutes had passed. The haze of sky overhead held a gigantic mass of almost blinding light. Beside them, the gully was waist-deep now and some ten feet wide. Pits were here, steadily opening into great depressions.

They scrambled down into the gully.

Shadows were here now, blurred shapeless shadows from the rocks and spires of the expanding ground. The gully had expanded into a valley. Its jagged wall was rising beside them.

Lawton felt it odd to realize that he was not dizzy now. He turned with a grim smile to Toler. "You okay?"

"Sure. Sure."

They found that they could not stand still; the ground under them drew their feet steadily apart so that constant movement was necessary. The distant valley walls were precipitous mountain-sides, great jagged cliffs. The blur of light in the hazy sky was gone behind one of the cliffs. The cliff-top cast a great shadow. It reached them, enveloped them so that a twilit darkness came.

The beginning of the new realms of smallness. Toler realized it. He said suddenly, "How big would you think we are now?"

Lawton shook his head. In the measurements of the outside world, they might be a hundredth of an inch tall perhaps. Or even less . . . He gazed down at the rocky ground under his feet as it shifted, expanding into new crevices of shadowed dimness. A hundredth of an inch, as they would have measured it in the laboratory. Yet at their feet a tiny pinpoint of depression could open to a monstrous yawning pit, with the realms of infinite smallness remote within it.

"Seems as if that first dose of the drug was wearing off," Toler said a moment later.

Lawton had noticed it. What had been a valley here was now a great tumbled rocky landscape, with strewn rocks and loose boulders. A fantastic landscape, bleak, naked and dim. Rock formations stood like great buttes. Ridged cliffs yawned with cave-mouths. But the crawling, expanding motion was slackening. For a moment they had sat on a rock. It seemed a minute or two before it was so big that they jumped down from it. Then presently the motion stopped.

Toler grinned. His heavy face was covered with sweat. He wiped it with the back of his hand. "Well, that's a relief. Do we take more of the drug now?"

"Let's rest awhile," Lawton said. He realized he was tired. Both of them were ragged and dirty.

They stretched themselves on the ground. "We're really not much more than well started," Lawton said.

"You mean, compared to what your father did?"

"Yes. I believe he took several doses of the drug."

When they weren't talking, the silence here seemed pressing on them. It was a darkly forbidding world—barren desolation of rocks, strewn as though by some giant cataclysm of nature.

"How long have we been gone?" Toler asked suddenly.

Again Lawton shook his head. "Half an hour?"

"It seemed about like that," Toler agreed.

"Father spoke of the time-element. Like everything else, the time-rate in smallness is different."

"Accelerated," Toler said. "I figured it would be that."

So that now they were living their tiny lives faster than before. An hour here might be only a few minutes, back there in the giant outer Earth-world.

They discussed it. And now they were aware that in the rocky dimness around them, a new form of light existed. A soft effulgence, like a phosphorescent mist hanging in the air.

"It seems to come from the rocks themselves," Lawton remarked.

A crevice was beside Toler. He gestured to it. "Down in there—look, it seems brighter. A glow—"

The light of the new realms of smallness, compared to which they were still

monstrous titans stretched here on the ground, beckoned beneath them. Lawton lay pondering it and for a time he and Toler were silent. Then suddenly Toler said, "How far in had your father gone when he found that blood diamond?"

Queerly Lawton had never thought since they started of the treasure he was after. "Certainly not around here," he said. "Father spoke of vegetation and streams of water."

There was another silence. "I hope you find the diamonds," Toler remarked. "You'll be rich."

"Lord knows I need it." So often, as he had worked on the drugs, Lawton had pictured the things he would do for Mary with sudden riches come to him; and the things he would do for himself—money to spend on research, and perhaps the endowment of other scientists who often with limited funds were struggling to advance the world. Lawton had given thought also to what he would do with these weird drugs themselves. Destroy them!

His father had discussed that with him. "A diabolic thing, Robert," his father had said. "Too evil, not to be destroyed." The drugs were a great scientific achievement, of course. But the good that they might do was far outweighed by their potential evil. . . .

A sudden sharp exclamation from Toler roused Lawton from his stream of thoughts. Toler was sitting up on the rocks, clutching him. "Listen! What's that?"

LAWTON could hear it, a distant scratching, scraping sound as though something were moving out in the rocky dimness. A loose rock rolled or fell with a faint blurred clatter.

"Something here?" Lawton jumped to his feet. There was nothing visible but the spread of tumbled rocks, vague in the half twilight, dimly tinged with the phosphorescent mist.

"It was out that way," Toler murmured. He stood gesturing. And then both of them gasped, stood stricken, frozen into mute horror.

A few hundred yards away a huge butte-like rock stood in an open space. Abruptly from behind it a slithering shape had appeared, a monstrous green thing on the ground. A giant reptile! It came scuttling into the open beside the butte—a reptile more than a hundred feet long. Its tail stretched out in a crescent behind and around the rock.

It seemed to see the two tiny human figures standing in the shadows. Its pointed head was reared ten feet above the ground; its huge eyes gleamed with a green glare in the twilight.

"Why—why—" Toler gasped. "That thing—it's—"

It was the tiny green lizard to which they had fed the diminishing drug back there in the laboratory! The drug it had taken had worn off, leaving it roaming here in a size gigantic compared to Lawton and Toler! Toler was gasping something of the kind. Lawton shoved him. "Run! Run!"

The huge reptile's tongue licked out from its green jaws; and now it was scuttling forward, coming at them with a rush that made the loose stones clatter under its monstrous feet. Lawton tried to keep his wits. Out here in the open the monstrous thing would be on them in a moment. To one side Lawton saw a recess between two rocks, a narrow crevice.

"This way!" he shouted. "Those rocks—"

Barely in time they darted into the rift. The scuttling behind them was a torrent of clatter. It seemed almost that they could hear the fetid breath of the thing as it sucked in and out.

"Back further!" Lawton gasped. "Its—its tongue is so long—"

Back in the crevice they wedged themselves while outside the baffled monster

stood peering with the glare of its luminous eyes glinting on the green snout. The rounded point of its great jaw came a little way into the opening. Its great tongue reached out, darting with dripping eagerness.

Through a moment of horror Lawton and Toler huddled together. Then the tongue was gone. The huge green snout shifted back.

"It's gone!" Toler breathed.

"Yes. I guess so."

For another moment they could hear the scraping scuttle of its feet. Then there was only silence.

They did not go out to investigate. There was no need to chance facing the thing again. For a minute or two they crouched with the cold sweat of their terror drying on them.

"We'll take more of the drug now," Lawton said. He smiled faintly. "I had a hunch not to let that dwindling little lizard climb on the quartz!"

"I never thought of it at all," Toler confessed. "Good Lord, what a chance we took!"

With another of the drug-pellets, the swaying expansion of the rocks around them began again. To Lawton it might have been an hour, with their little haven of recess expanding into another broad valley—an hour of sometimes frantic scrambling down widening ramps, jumping into expanding pits and deepening canyons. All semblance of overhead light was long since gone, so that the effulgent glow was constantly more apparent. Then it seemed that they could see it streaming from the rocks, making the soft twilight luminous.

Then at last, again the drug seemed expended, the movement around them slackening. For some time now there had been evidences of water, a little moisture clinging like dew to the rocks; then moisture in the hollows. And the rocks themselves were different. Occasionally they came to places where the ground was like earth. Then vegetation appeared. Little blades of gray, struggling here and there in the softness of the dirt. There was a glade of queerly stunted trees, like an outpost. . . .

"Well, I guess it's stopped again," Toler said.

Now they were standing on a broad shelf of rock in the opal twilight, with a sheer brink here into a great wide rolling valley, far down. Behind them on a slope a little patch of gray gnarled trees stood in the bleakness up here on the height. Beyond, the distant serrated ramps of mountains miles away loomed up into the hazy blur of what one might call a sky. To the left, out of a rock-cleft, a small rill of water bubbled to the lip of the brink and fell, spraying out, carried by the gentle night-breeze out over the lower valley.

On the brink, Lawton and Toler stood and gazed down. It was a rolling landscape of trees thick as a forest. A ridge of mountains was behind it; a river wound through it like a shining, twisting silver ribbon, broadening in one place to a placid lake, then narrowing again. And there were open spaces like fields.

It was all dwarfed by distance down there. But suddenly Lawton realized that the distance down was not as great as he had thought. The valley was like a toy landscape—a scene all in miniature, with two giants on a great ledge of rock gazing down at it.

"Look!" Lawton murmured. "Things are moving—people are down there—see them? Humans!"

There were tiny moving dots in the fields, where things were growing; and beyond the patch of forest, a group of tiny dwellings, the dots of houses with streets between them. A human civilization was down here in the realm of smallness! It stirred Lawton, the scientist in him was fervid with eagerness.

"Toler! Just a taste of the drug will

carry us there! We don't want to be giants and frighten them—"

But it seemed that Toler did not hear him. Toler was staring, not down into the valley now, but off to one side where the rill of water was babbling.

"The blood diamonds!" Toler murmured. "The blood diamonds—there they are!"

The diamonds sparkled in the luminous twilight. There seemed to be a vein of ore in the cleft face of a rock, and down by the rill of water where it had washed some of them out, the little carbon-stones lay strewn.

Not just here, but everywhere on this height and perhaps for countless miles of this upper stretch, the treasure lay for the taking.

"The diamonds!" Toler murmured again. "Look! So many of them!"

Now he had left Lawton and dashed to the stream. He picked one up. His hand was shaking. The tiny jewel, worth nothing here, yet a thing for which men would work and struggle and fight in the outer Earth-world, lay in his palm.

"Good enough!" Robert Lawton, as he ran up, did not see the heavy face of his companion. He did not notice the shaking quaver of cupidity in Toler's voice; he could not see the gleam in Toler's eyes; least of all could he guess the import of Toler's rush of thoughts. "The blood-diamonds!" Lawton echoed. "Well, I'll be damned! Here they are!"

He stooped to pick one up. Vaguely he was aware that Toler was moving and was behind him. Then suddenly Toler leaped.

"Why—what—what the devil—" Lawton could no more than gasp it; and then he realized that Toler was gripping him by the throat, the weight of Toler's massive body pressing him backward.

"That vial—give it to me!" Toler rasped it out as Lawton fell backward with his adversary sprawling on him. "The enlarging drug, damn you—"

"Jacques! Why—" Then he knew that Toler had seized the vial with a cry of triumph. Lawton's sudden shock of confusion still blurred him. In the dimness there was only Toler's face contorted with frenzy. Desperately lunging, Lawton tried to get to his feet. For a brief horrible instant he realized that Toler was gripping him, heaving him with massive strength . . . and that the brink was yawning beside him.

For just a moment Robert Lawton fought with frenzied desperation trying to save himself. The blow of Toler's fist in his face blurred him so that his senses reeled. The brink was closer. Vaguely he knew it; vaguely he felt himself frantically clutching. Then he was toppling, falling. He may have had a last realization that he was screaming as he fell.

AT THE brink, the panting, sweating Toler drew back and crouched, peering down. For a few seconds he could see the blob of Lawton's body as it fell. To the tiny world down there it was a monstrous giant hurtling down from the heights. The sound of the splintering little forest trees floated up to Toler. Then in the opalescent glow he could see the broken body of Lawton lying stretched with the forest mashed under it, and the shining thread of river damming up.

Then Jacques Toler drew back. A triumph at what he had done was within him—a thing he had slowly contemplated during all the strange journey. Now he leaped to his feet, gathering up all the sparkling little jewels he could carry. They were enough, more than enough to make him rich beyond any of his dreams. And there was Mary Lawton, just a teen-age girl, fatherless now, and dependent upon himself for comfort in her bereavement. Her beauty had always fascinated him, even though she had never shown any warmth toward him. Things with her might be very different now! The rich and

famous Jacques Toler! The discovery of the drugs, which now he could claim as his own, would bring him the acclaim of the scientific world.

And no one could ever say, of course, that Lawton's death down here had been anything but an accident!

To Toler, the return journey seemed far quicker, far easier than coming here. Around him in a moment, the shining landscape was shrinking, the ground under his feet drawing inward, the pale distant mountains coming forward and down, until he was towering beside them, stepping over them into new dwindling realms.

The drug wore off at last. He rested, then took another of the white pellets. Resting here in the boulder-strewn, barren valley, Toler suddenly remembered the great green reptile roaming somewhere here. Fear swept him with the startled sense of how tragically ironic it would be if now, at the last, his triumph were snatched from him. He stood peering anxiously around.

And then he saw it! Off at a little distance the huge green shape was lying. Almost at the same time, it was aware of him as he stood transfixed, mutely gazing. It reared up. And now it was slithering forward!

Toler ran. The shrinking ground, all in motion now because he had taken the second of the drug-pellets, shifted under him so that he was staggering. He thought in a moment that the damnable thing was upon him. Desperately he looked back. It was behind him, but it was far smaller now! Dwindling green shape . . . Then it was perhaps the length of his own body. . . .

Toler stopped running. Like the shrinking rocks, the approaching, lowering valley walls, the lizard was dwindling. It was poised ten feet or so from him, but the shifting ground was bringing it nearer, until in another moment it was a tiny thing. His foot raised over it, but it scuttled away and was gone in a twinkling.

Jacques Toler laughed with a new sense of his power and his triumph. Nothing lay ahead of him now but his triumphant return to his own world—to Mary—

Then at last Toler knew that he was roaming the upper surface of the fragment of diamond quartz. A tiny creature still, to the giant outer world perhaps barely a hundredth of an inch tall, but the journey was almost over. Above him was the great dazzling glare, high up in the blur of distance, that he knew to be the hooded light over the quartz and the marble slab. Vaguely he could see the laboratory walls now, blurs far off in the distance.

And suddenly he could see that there was movement up there. A towering human shape; a patch, pink-white, which was the blur of a human face, high up in the dazzling glare.

Though Toler did not realize it in that first moment, little Mary Lawton had come into her father's laboratory—a slim brown-haired girl in a dark dress which she had worn to the church choir practice. She had thought her father would be here. She stood a moment expectantly gazing around. She had never seen the slab of black marble before. It puzzled her, and that little sparkling chunk of rock lying in its center. Impulsively she stooped down, with her hand reaching to pick up the rock-fragment. . . .

To Jacques Toler, standing there with the triumph of his return still upon him, those last seconds were a blur of horror. He saw the titan shape of the girl bending swiftly down . . . There was an instant when he saw the great pink-white blob of her hand swooping above him in a roaring rush of wind that blurred the tiny squeak of his last desperate cry. Then the monstrous pink mass which was one of her fingers closed down. . . . Mercifully Jacques Toler's human senses faded instantly into the abyss of death, and his darkling spirit fled away.

*From the prisons, from the living graves, from the outmost stars, they came back to what had been Earth, only to find Man's greatest enemy—*

# BEYOND • ALL WEAPONS

## By L. RON HUBBARD

THE REVOLT was over and the firing parties had begun. In a single day in Under Washington, three thousand rebels were executed and twelve thousand more condemned to life imprisonment in the camps. And the *Bellerophon* hung fifteen thousand miles out of reach, caught between death by starvation and swifter death by surrender.

She was the last of the rebel ships, the *Bellerophon*. Sent by Admiral Correlli during the last hours of the action to the relief of an isolated community on Mars, she had escaped the debacle which had overtaken all her sister ships in contest with Earth.

The revolt was ill begun and worse ended. But the cause had been bright and the emergency large and Mars, long-suffering colony of an arbitrary and aged Earth, had at last, as the dying bulldog seeks to take one final grip on the throat of his foe, revolted against Mother Earth.

But there was little sense in recounting those woes now, as Captain Guide well knew. The taxes and embargoes had all but murdered Mars before the revolt had begun. The savage bombardment of the combined Navies of Earth had left an expanse of wasted tillage and shattered towns and the colonists had been all but annihilated.

Like her sisters, the *Bellerophon* was a converted merchantman. Any resemblance she bore to a naval spaceship was resident only in the minds of her officers and crew. Plying her trade from Cap City to Denverchicago, she had suffered much from being colonial-built. The inspectors on Earth had inspected her twice as often as regulations demanded and found ten times as much fault. And because she was colonial, her duties, enforced by irksome searches and even crew seizures for the Earth Navy, had all but bankrupted Smiley Smith and the line's directors—not that that mattered now, for the company and all its people were dead in the wreck which had been the finest city in the colonies.

"*I* won't surrender!" said Georges Micard, first mate. "Not while I've got a gun to fire! It's their holiday. Let's give them a few blazing cities to celebrate by!"

Guide, cool, austere, had looked at his mate in silence for a while. He said, "Your plan is not without merit, Georges. We have suffered beyond endurance and our comrades have died gallantly. And a few blazing cities would be much in order were it not for one thing: the barrier."

Georges, optimistic, very young, was apt to forget practical details. The reason Earth had won had been the barrier. So

Above them blazed the Sun, unmistakable. About them crouched the towers of a city long dead. . . .

well had the secret been kept that when the colonial fleet had attacked, every missile they had launched at the queen cities of their mother planet had exploded a thousand miles out from target. There was an invisible barrier there, a screen, an electronic ceiling. And Mars, new-formed, braver than she was sensible, had found herself unable to retaliate for the thunder of missiles which had wrenched her cities from their foundations and laid them into dust.

"All right," said Georges, glancing around the wardroom at the other officers. "We'll sit up here until the cruisers come get us and then we'll vanish in a puff of atoms."

"They won't come," said Carteret. "They know we are here but they'll wait for us to starve. They have every spaceport on Mars and Venus. We're done."

Gloom deepened in the room. Then Albert Firth, their political adviser, an intense-eyed Scot, honed keen in the chill clime of New Iceland, Mars, leaned forward.

"You interested me, captain, when you spoke today of the drives for which our fleet should have waited. Exactly what were those drives, sir?"

Guide looked at him with understanding. It was time to speak. These people had depleted their own stores of ideas. Hundreds of thousands of colonists were dead and, as fast as the orders for execution could be issued, thousands more were dying. These men would not cavil at thin chances.

"I have had, for some time, a plan," he said.

Eyes whipped to him. They knew Guide. Bilged out of the Space Academy at fourteen for one too many duels, raised by the lawless camps of the southern cap on Mars, cast off by his family but infinitely esteemed by his comrades and former employers, Firstin Guide was a man to whom one paid attention.

"I think they ought to be whipped," he said quietly.

In more optimistic times, that had been a common opinion on Mars. Since the triarchy of the Polar State had destroyed all free government, the thoughts of less disciplined peoples had run in that vein. Martian colonists were, more lately, refugees from the insensate cruelties and caprices of the Polar regime. And they had all thought that the "snow devils"—that strange race who had managed to adapt their metabolism to the blood-chilling climate of the North Pole, and who in half a century had made their unexploited realm the prime power of Earth—ought to be whipped. But here, in a ship almost out of food, low on ammunition, with half her fuel gone and her cause already lost, those words drew a quick intake of breath from all. But they knew Firstin Guide. He would not speak idly.

"At Spencerport," he began, "a technician named Jones perfected, about five years ago, an extra-velocity fuel. You all know of that. It burns too fast and has too much thrust for anything but spurt space racing."

"I know the fuel," said Albert. "But Spencerport was wiped out."

"So it was. But it happens that I was loaded with EV fuel for transport to Earth when I was mobilized. I landed that cargo when I landed my merchant crew and took aboard you gentlemen of the Naval Volunteers. That fuel is cached at Rangerhaven: I was not raised to trust the expected to happen, gentlemen. I put it in a vault."

"But what has this to do with us?" said Georges. "Sure, we can risk a landing at Rangerhaven, that's ninety leagues south of nowhere, the most godforsaken spot on Mars. But of what value could this fuel be—"

"Gentlemen, there have been several attempts for the stars."

They stared at Guide, unwinking, at

once stunned and elated. And then Firth relaxed. "No use, sir. Ships have gone. But ships don't come back. That's been a closed book, captain."

"If you have closed a book recently, Mr. Firth, you doubtless noticed that it could be opened again."

They were restless then. They wanted to believe they had a chance. They could imagine they heard the firing parties at Under Washington. And they had been on half rations for a week.

Guide looked coolly at them. He had judged his moment rightly. "I picked up a technician from the prisoners we took at Americaville. A very well-educated young Eskimo."

They recalled this, and they also recalled Guide's insistence that they sort out the garrison before they executed the Earth infantry.

"He is down in the brig," said Guide. And he sat back to give them his final stroke, casually, almost bored. "He knows the formulae of the barricade."

When he saw how deeply this shaft had sunk, he followed it. "And with those formulae a single vessel could penetrate it and, with her drives alone, lay waste the central Polar cities. That done, the restoration of free government on Earth would be very simple. All that is necessary is that we take all we can in the way of technology and personnel, lay a course for the stars—Alpha Centauri first—and locate a habitable planet. That they exist is unquestionable. There we set up a colony, build our barrier-breaker and return to Earth as a combat ship to ruin Polar domination."

He lighted a small cigar to make it all seem simple. "I think," he said, "that they should be whipped."

His attitude, his casualness, drove away the terrible question marks posed by the plan. Ships had gone, using EV fuel. Ships had not come back. Theoretically it was impossible to travel to the stars, but theory is a cold thing and subject to much reversal. Theoretically a ship blew up when it tried to break the "wall of light". But there had been many another theory which, in practice, had proven wrong.

They were none of them mathematicians. They were what they called practical men. All but Firth had grown up in spacetravel around the Sun. The heartbeat of Mars was Earth commerce and it had been to preserve that commerce that they had fought. Therefore a stellar voyage was only an extension of what they already knew.

"I have no instruments for measuring speed nor even for navigation to the stars," said Guide. "I have no idea whether we can 'break the wall'. I know no more than you what lies out there en route to Alpha Centauri. But I know what lies before us here—a firing party for ourselves and the end of freedom in this system forever. I think," he added, after a slow puff at his cigar, "that an unknown and even dangerous adventure is preferable to a sordid certainty. Your votes?"

There was no standing out against this chance. They gave him their "ayes" right gladly and they began to quiver with hope as they stabbed outward for Mars and Rangerhaven.

Going up in a puff of pure energy was better any day than going down before the grinning pleasure of a Polar firing squad.

IT WAS black polar night when they again touched Mars. A blizzard was yelling, ninety below cold and fifty-five miles an hour strong. And the port lay shattered and deserted, roasted into lava by the passing vengeance of the Earth navy.

At the head of a landing force of twenty militia and against the protests of his officers who urged him not to risk his life, Captain Guide made his perilous way toward the operations building, buffeted by

the wind and blinded by whirling granules of snow.

They reached their objective and Guide and a sergeant, smashing back the door with blasters, leaped inside. They were almost shot by the startled group around the stove. They almost fired into that group. But then they recognized one another and they laid away their weapons and held a glad reunion.

There was Cadette, captain of the *Asteroid V*, Miller, skipper of the *Swift Voyage* and Gederle, master of the *Queen Charlotte*, merchantmen all. To see one another alive was surprise enough for the moment and Guide, gloating now at this reinforcement, let them exuberate for a while.

"By whillerkers," said Cadette, "last I seen of you, Guide, was your flyin' lights vanishin' out toward the fleet. And now by golly you pop up like bad money. Say, how'd you land out there in the middle of three ships? Might have ruined one of us."

"I was too late for action," said Guide. "It's all over now with the fleet."

They held a long silence after this, a bitter silence.

Guide broke it at last. "But how did you manage to escape, the three of you?"

"Fleet train," said Miller. "The *Asteroid* and the *Swift* were carrying food and ammunition and Gederle had about five hundred marines on his *Queen Charlotte*. Then Cadette had a battalion of engineers in case we had to patch up Earth when we took it—devil with it," he added suddenly. "We're alive right now but it's a matter of a few days until the Earth patrols locate us. You can't hide anything as big as our stuff. We're done for."

"Yes," said Guide, "I suppose so."

There was something in the way he said it which distracted them from their depression. They knew Guide as a vicious poker player and a stealer of cargos and they respected him.

He sat down beside the glowing pot-belly stove, warming his lean hands. He let them work up their own curiosities before he said, "I have a slightly different angle. An unknown adventure is better than a certain defeat. I might be able to use you gentlemen—*and* your engineers and troops."

That anything in the Universe still had a use for them was almost argument enough. They had come here, intending to make one last battle of it against the hopeless numbers of Earthmen and ships which must, this minute, be combing Mars for the last of the rebels. Polar night would hide them at best for a few days. And then powerful detectors would rake across the place and they would be called upon to surrender and die or fight and die. They had seen as they passed all that was left of Cap City, all that remained of Gold Strike, the ruin of Fort Desolation and the death-strewn ramparts of Base One, once the most powerful single fortress in the Solar System. Out there across the continents they had wives, children, parents, and they knew nothing of their fate. But spacemen have a certain fortitude. And they could look now at Guide.

"I cached," said Guide, "some fifty pounds of extra-velocity fuel in a vault near here when I was mobilized."

"Fifty pounds!" said Miller.

"Are you sure it wasn't blown up?" said Cadette. "You haven't seen this place in daylight. It's a ruin."

"When I was a kid around here, we used to get blown up pretty regularly," said Guide. "Rangers being no better than what they were. And we had an old vault in which we cached loot. The EV is down there by the river in that vault. I took most of the packing off it so it will be easy handling. We have four ships. That's twelve and a half pounds a ship or enough for six months' burning. From what you say I gather we have about fifteen hundred men amongst us including your troops,

and perhaps two or three months' provisions?"

They were breathless, expectant. They had lost one hope already and they were afraid to lose this one.

But Gederle was a conservative. "If we try to burn EV we'll be unable to keep our speed down to finite levels. We'd be out of the Solar System in a matter of hou—" He halted. Suddenly they understood.

"But it's never been cracked!" said Gederle.

"Well, blasting through the wall of light is preferable as a chance," said Guide. "I never heard of a man surging through a row of Polar burners yet."

"The wall of light," whispered Cadette. "And then—then the stars?"

"Yes," said Guide with an elaborate yawn, crossing his fine boots and pouring a drink. "The good old wall of light. A lot have gone out for a try, but none have come back. Maybe they exploded into pure energy. Maybe they are derelicts. And maybe it's just so confounded fascinatin' in the stars that they don't want to come back. Well?"

"But do we just leave everything? The war—well, that's lost. But how about our people?"

"The only reason I'd risk it," said Guide with sudden viciousness, "is to get a chance to come back and wipe out these ice-brains! We pledged our lives to kill them. Earth is ours. We aren't done yet! I feel," he added, leaning back and grasping his drink, "that they can still be whipped. You see, I've one of their engineers aboard who knows the secret of their barrier."

This catalyzed them into instant enthusiasm. Their bitter hatred had carried them far. Now it was going to carry them further. Words of savage hope rushed from them and they fell into an involved discussion of ways and means.

After a while Guide interrupted them. "I think it unwise to put all our chips on one stack of cards, gentlemen. I would like to form a colony in the stars, build the necessary equipment and then come back with a small portion of our people and wreck the ice-brain towns. If we fail to take Earth, we will at least have made it possible for our own people to revolt. But we may have to retreat again. We need a base in the stars. I think the *Queen Charlotte*, being a fast liner, could give us her troops and then join us after we are gone to a certain rendezvous."

"But why should she stay behind?" said Cadette.

"I'll do whatever you say, Guide," said Gederle.

"We've fifteen atmospere planes," said Guide. "While the enemy is still trying to consolidate his gains here I suggest we spend what time we can getting our families, those we can find, and women down to the *Queen Charlotte*. If she gets caught, she gets caught. At least the rest of us will be free to attempt the project and avenge her."

They looked at him, the glare of determination on their faces. They knew nothing of the stars or the navigation to them. They had no way of computing their future speed. They were grasping a thin hope. And they drank greedily to it.

JUST outside the giddily whirling Mercury the three spacevessels waited. They had improved their time by patching up battle damage and distributing stores. And they waited now tensely for the *Queen Charlotte*.

Hers was the most daring role in this part of the mission. But there was danger to the others as well, for the *Queen Charlotte* might be allowed to get free only to lead the victorious navy down upon the rendezvous. They were tense, then, trying to hide their anxiety, trying not to appear overwrought with worry over the fates of their own people.

A hasty canvass of the entire small fleet had netted a large number of addresses. Only a fool could suppose that a third of those to whom rescue was directed for the *Queen Charlotte* would be reached. Many might be perfectly well and alive and still miss the call of the atmosphere planes. In the act of escaping the garrisons, several planes or all of them might be blasted down. And a stray cruiser might have come upon the old freebooter holdout at Rangerhaven and blown the *Queen Charlotte* and all her rescued people to questionable glory.

But they worked on the *Asteroid V*, the *Swift Voyage* and the *Bellerophon*. They intended to go four ships as one, banded together with something more than signals. As they intended to reach at least fifty times the speed of light, they knew that they would become invisible and lost to one another in the first few hours. And so, with torches and metal bars, they were uniting themselves as a cluster of ships, all using their drives, all forging ahead but only the *Bellerophon* steering. They had argued on the safety factor for some time and had decided that it was better to perish as a unit than to get lost as a fleet.

But the workmen were laggard, scrambling over the hulls, clumsy in their space kits. Their eyes were continually raking the dark skies about Mercury which lay a thousand miles from them. The Sun's corona lashed and blazed, a gorgeous sight. They had eyes only for the possible coming of the *Queen Charlotte*.

High purpose and higher resolve stirred them. But their hope lagged as long as the fourth ship remained unreported.

And then, at the end of the fifth day of their wait, yells of joy sang out through the ships and crackled over the workmen's intercoms. Down from the Sun came the *Queen Charlotte*, intact, braking and jockeying to drift to a halt beside them.

Within the hour Guide was reading over the intercoms of men and ships the list of those saved.

It had been hot and nervous work. One atmosphere ship had been sighted and shot down, another had been badly damaged but had come through. And one hundred and eighty-five members of the familes of those in this fleet had been contacted, still alive, and rescued. At first thought, the personnel looked at this as a bad show; but then the tales of the adventure began to circulate through the ships and the rescue took on the complexion of the miraculous. Hardly a building was left standing in the major cities. All communications were out. Ice-brains were everywhere, raping, burning, looting. One hundred and eighty-five names out of two thousand was a phenomenal high.

The fates of many of the missing were known, a fact which dispelled much uncertainty, for the families were close as spacemen are close. And then, a victorious factor—there were two thousand women on the *Queen Charlotte*, rescued at random from the floods of terrorized civilians pouring from the towns of Mars.

They had a staff meeting on the *Bellerophon* while workmen put graps on the *Queen Charlotte* and brought her into the cluster.

The tales Gederle's people had brought had inflamed them to a desperate pitch.

"I hope, gentlemen," said Guide, as they took their chairs, "that we have done and will do all that we can. It is obvious that upon us depends any future freedom in the Solar System and upon us devolves the whole responsibility of rescuing our late comrades and our people. We have the nucleus of a new base. But we must remember that our primary mission is the rescue of Earth. It will take months to build up the necessary technology to crack the barrier. We must invent and perfect a most complicated device. And we must have a base from which to strike again should we, this first time, fail, for if we

even remain near the Sun, we will be discovered and destroyed.

"If we reach the stars, Earth can be saved!"

They made their adjustments, discussed their courses, rearranged their personnel for cluster travel and then stood up.

Ceremoniously they shook hands.

"In a very few days," Guide said, "we will be certain in the knowledge of victory, or a mist of pure energy between Earth and the stars. Your posts, gentlemen."

In ten minutes their drives thundered and they were outward bound.

IT RAN through the ships like an electric impulse, the miracle they had experienced. It dazed them.

Nine days had passed and here they gazed down upon a shimmering, lovely world, wrapped in cloud mists, plated with seas, colorful with continents.

Nine days!

This was Alpha Centauri. It was many light years of travel from Earth and here they were in nine days! Light, traveling at 186,000 miles per second required years to get there from Sol. They had made it in nine days!

The wonder of this was second only to their wonder about the planet below. An atmosphere plane had skipped off two hours since and had radioed back technical data which elated them all. Three-quarter gravity, good air, good water, wildlife, a multitude of plants.

And Guide gave the orders to strike away their bonds and land in units.

He stood, watching the rest ease to a landing on a grassy plain where a river ran, and fooled perplexedly with his pencil. He could not calculate exactly how many, many times the speed of light they had had to come to do this. For Guide was no astronomer, nor were the rest of the officers. But he had made the daring gesture and he had come through. They had not exploded, they had not encountered meteor belts. They were here and that should be enough. But it puzzled him and through the months which came would rise again and again to confuse him. Nine days to go several light years—

But the others were jubilant. Those who had had to leave their women behind them, those who knew their families to be alive still, confidently expected an early reunion. Those who had but lately watched the white fleet burst into flame and vanish before the gunnery of the Earth navy swaggered over their chance at revenging their friends.

THE SELECTED site quickly sprouted shacks. The season and climate had been chosen for food raising and soon gay groups of women could be seen bringing gardens into being from the seeds they found there and from the various grains in their supplies.

A doctor got busy on the captive Eskimo engineer and shortly hypnotics and persuasion garnered a harvest of technical information.

Men laid out a factory site and built the necessary huts from logs and equipped them from the vessels.

It was a season of high hopes and violent effort and few there were who spent less than eighteen hours of twenty-six—the planet's day—at their tasks.

"The enemy did not wait for us," said Guide. "We will not wait for him to recover from the disorders he has brought on himself. The faster we are finished here, the sooner we will again own Earth. We'll deliver her and present her with a colony and a new commerce. We'll wipe out the ice-brains, rebuild our cities and then, of course, develop all the stars. We've won already. The rest is mere technical detail."

During the next ten months of ceaseless effort the only complaint came from the women. They were not certain. The trip had once been made, true, but should they be left here with only a small fighting

force to protect them, they would have little chance of building any kind of a strong colony. They wanted to know why the thoughts of vengeance which obsessed these men of theirs could not find outlet in the creation of a new world. Was not New Earth a promising land? With their technology and skill, could they not build here everything they had left behind on Mars? Why risk a trip?

Guide heard them out complacently. In his buoyant good spirits he would not hear of any failures. But at length, seeing that this new colony would indeed be helpless without manpower and good technicians, he agreed that they could have one ship, the *Asteroid V*. With a skeleton crew, the *Asteroid* would stay behind, providing at once the necessary guard for the colony and the means of going off for aid if the main mission failed. It would not carry half the people who would be left behind, being the smallest vessel, but it could go for relief. That would give the colony a safety factor. And beyond that Guide would not go.

At the end of ten months, with all the effort devoted to the barrier uncoupler, with the colony barely able to support itself, Guide announced the time of takeoff. There was a loud girding and harsh rattle as soldiers and spacemen and marines prepared for the coming action.

In the midst of departure an atmosphere pilot who had been testing his ship returned to base with news. But little attention was paid to him.

"Over that range of mountains," he said, "there's a lot of mounds. I landed for a look-see and, by golly, it's a colony. Been gone for hundreds of years, I guess, but there's a cemetery and the names cut in the stones are Earth names—Jones, Smike, Dodgers—"

"Hmm," said Guide, mind on getting a transformer aboard the *Bellerophon*. "Must be an early expedition. Old-time ship. No women. Broke down here or ran out of fuel and there they are. Well, well. Steady on that tackle, there."

"I don't think so," said the atmosphere pilot. "I mean I said hundreds of years, but that place is really *old*. It's a long time before spacetravel, looks to me. Stones all weathered away, graves sunken, big buildings all crumpled like the Parthenon. Really old. An expedition wouldn't have gone to that trouble if they hadn't had women."

"Been no tries for the stars before fifty years ago," said Guide. "Guess you must be wrong. Easy, easy now. You want to knock the side of the ship out?" He smiled at the youngster. "Been no fuel before EV that would have made the grade. You hop over and give them a hand loading your plane. Won't be more than an hour before we leave dirt."

Some of the women hovered on the outskirts of the commotion. One of them at last plucked up nerve to talk to Guide. "Sir, I'm worried."

"Nonsense," said Guide. "We'll be back in a matter of weeks."

"But without help we can't construct our irrigation dam or do any of the hundred other things we'll have to do to make this a good colony. You're taking all the technicians."

"Need 'em," said Guide. "Got to break that barrier. And don't worry a minute. We'll be right back. I like this place. Mars is too dry for good agriculture."

"I'm afraid," she said. "I have a terrible feeling that you may never come back. We'd—we'd perish here."

"Think I'd let that happen?" said Guide heartily. "You've got the *Asteroid*. You can send her for help if we don't make it. Even the ice-brains will respect you for being the first star colonists."

"Oh why, why don't you give up this mad vengeance!" she wept. "It will do no one any good! Haven't enough men been killed? Here we have the stars. Don't throw them away! Send a secret

ship to land on Mars and bring off new colonists. But forget this war!"

Guide looked at her. She was very pretty, very frail. He had a weakness for pretty, frail women. But suddenly he straightened. "We'll be back. Don't you worry about that! We'll be back!"

THE FLOTILLA returned on separate courses and rendezvoused behind the Moon. They were watchful, stealthy, filled with a high spirit but well knowing that the forces they faced were more than a match for their puny strength.

They were waiting for the *Swift Voyage*. It had had another destination and was to join them here.

The easy passage home had raised their morale to the heights. Even a major accident to one of the ships would not prevent the return of the majority to New Earth, a victorious return to a planet infinitely better than Mars or worn-out Earth.

And then the lookouts sung out the *Swift Voyage* and shortly Miller boarded the *Bellerophon*. His face was enraged.

"The dirty little devils! The dirty, stinking devils! You know what they've done?" He threw down his gloves with a bang. "Mars is smashed. There isn't a building left on it. Cap City, Rangerhaven—they've been disintegrated!"

The other two captains stared at him.

"We took a scout, got right down close. And there's nothing! Nothing! They butchered every colonist on the planet. They knocked apart every station. There isn't a thing left. Not a dam, a radio tower, nothing!"

"You got right down close? Then they don't even patrol it," said Guide.

"Why should they," said Miller bitterly, "when there isn't even a sheep or a pig left on it to be patroled!"

"That bad," said Guide. And he squared up. "Stand by to break the barrier!"

THEY slashed at Earth in a vengeful V, the barrier trips running high, their guns ready, set all three to level entire cities with their blasts. Their immediate target was Nordheim, capital city of Polaria.

From the *Bellerophon* came a signal: "Stand by to fire." And then, suddenly, inexplicably from that flagship came the countermand, "Wait."

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They slowed. They turned.

"Shift target!" barked Guide. "Our own fleet must have gotten here before it was destroyed. Shift target to New York."

And they curved off, these three improvised warships, and rode the curve over the rim to North America and New York.

"Stand by. Range coming up. Ready—" Thus cracked Guide's voice. And then, "Wait!"

They sheered off and the *Bellerophon* detached herself and swept lower. Then before Cadette's and Gederle's incredulous eyes, Guide swooped in for a landing and came to rest, a tiny spot of silver on the plain far below. They hovered.

And then Guide's voice asked them if they would land.

Guide was standing in the center of a grassy place when Cadette and Gederle came up. Guide was looking with weary wonder in his eyes at a plaque which stood, aged and unthinkably weathered, where New York's many levels had once towered.

They could not read the plaque. The language on it was not Nordic nor any other American script. And it was not European or English.

Above them blazed the Sun, unmistakable, setting in a blaze of red clouds. About them crouched the fallen towers of a city long dead.

And then stars began to show in the gathered dusk and Guide looked up to find new wonder there.

"Vega! That's Vega, isn't it?"

And Guide fished hurriedly through his kit for an infantry compass. He looked at it and he looked at where the Sun had set and he looked at the great, bright star.

"That's Vega," he said in a hushed voice. "And it is the north star."

For a long time they stood there, trying to assimilate what had happened, trying to understand. In them died the last heat of the battle they had sought to engage. They knew little enough about higher orders of astronomy. But every spaceman knew that once in every twelve thousand five hundred years Vega became Earth's north star.

That was their time factor, then. That was their time. And where was the enemy? Dead these mossy stones and ruins said, dead these thousands of years. And the atmosphere scouts they sent through the night at length came back to prove it.

Man had perished from the Earth millennia ago.

And Guide, sunk down on a fallen block of bleached granite, scratched in the sand with a stick. He nodded at last in slow and awful comprehension.

Cadette knelt and looked at the symbols and figures and then Gederle knelt down. They looked at one another.

"I was never much for school," said Guide. "But they taught us once about this. Man must use it daily now and we all knew it well. It is the Einstein Relativity Equation. And few of us have ever considered that it had yet its second step. And yet that is common knowledge too."

In the stillness of a quiet night, under far and lonely stars, they still knelt.

"As mass approaches the speed of light," said Cadette, hushed, "it approaches infinity. And as mass approaches infinity, time approaches zero. It was only nine days back from Alpha. But in those nine days six thousand years have passed by Earth."

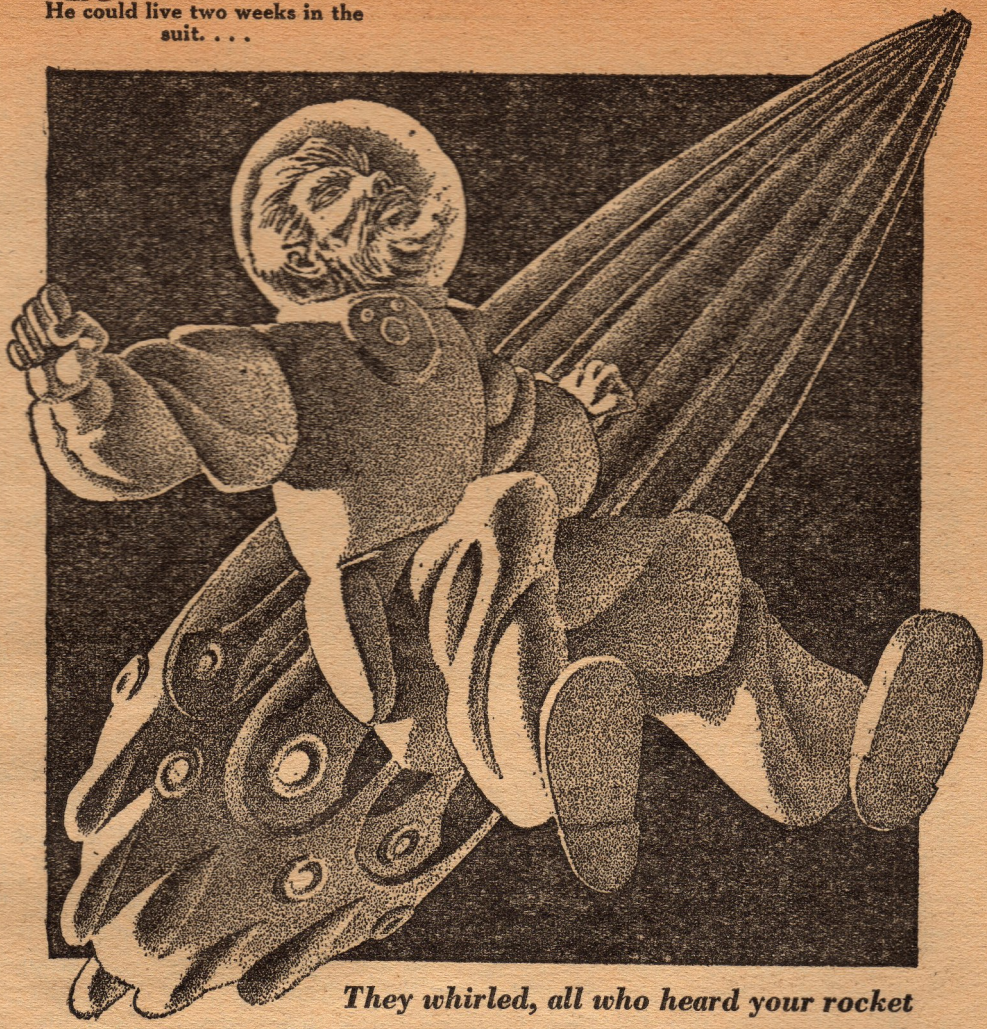
"We never broke the wall of light," said Guide, bitterly, clenching his hands. "We only approached within fractions of 186,000 miles per second."

"Time stood still for us," said Gederle. "We're probably the last men alive. It's a good thing we planted—"

Suddenly chilled and hushed, as one man they stared upward at the cold, far stars.

Overhead, their colony and their women were already—six thousand years dead.

He could live two weeks in the suit. . . .



*They whirled, all who heard your rocket song, dying and dead against the stars. . . . But he who plays that hellish tune must dance to it—so—*

# SPIN, DEVIL!

## By JOHN WADE FARRELL

THE MASSIVE, bearded man stiffened in the wide web straps, tilted his head back and yelled with all the power of his lungs. It was a gargantuan yawp that set up a heavy metallic resonance in the forward compartment of the tiny ship. He yelled again and again, and suddenly stopped. He slumped, his face slack, his mouth open, a sticky thread of saliva on his bearded chin. His eyes, small flecks of aquamarine in the weathered leather above

the beard, were dazed and confused. A series of relays clicked and he was once again in the deathly silence that had lasted for ten full days. His fear soured the air around him.

He shook his big head, dug at the corners of his eyes with his knuckles in a gesture like that of a tearful child.

Then a look of animal cunning crept into his eyes. He carefully checked his astrogation chart, flicked the switch that started the gyros, watched the dial that indicated change of axis. When the change was sufficient, he cut the gyros. Three tenths of a second of blast would straighten the little ship on the new course. The blast was like a tremendous hammer that flung him heavily to one side, the straps tightening like bands of steel.

His lips moving, he counted off the seconds as he watched the rear vision plate, black with the nothingness of space, the star lines distorted by the supralight speed. Fourteen - fifteen - sixteen. . . . There it was! A needle-point flare.

The Security cruiser was steadily narrowing the distance between them. He couldn't hope to match its speed.

The need for sleep welled over him. He checked the simple dials. Slouching in the web harness that held him fast to the chair, he closed his eyes. His face twitched as he slept.

SENIOR Lieutenant George Bolles, commanding the light cruiser Genesee, crew of eight, yawned and then glared at the pursuit plate. The pip, representing the tiny ship far ahead, was nicely centered in the plate.

For eleven years Security had searched for the planet hideout of Wink Midas and his nest of pirates. George, while still in elementary school, had heard of Midas' work. Luxury cruisers on the planet lines attacked in space; money, jewels, fuel, liquor, recruits and women hustled quickly into the attacking ship.

Midas had become a legend in his own time, cruel, ruthless and powerful. He alone had kept the interplanet insurance rates at an exorbitant level.

And finally an obscure research mathematician at Security headquarters had analyzed eleven years of survivor reports, had charted the position of each attack, the trajectory away from each. Making the assumption that in every case the attacking ship would head away from base, he had plotted the one area of the universe toward which the ship had never headed. Thus a possibility of incredible billions of planets had been narrowed down to approximately 1.3 million.

Security specialists had girdled the area with scanners built to resemble small asteroids, placed them in orbits around outlying stars. And within three months the hideout planet known as Midas I had been discovered.

Never again would one of the vast passenger ships be subjected to "the Midas touch." Never again would an ill-fated ship like the Denver be robbed of fuel beyond the safety factor so that by the time Security rescued her, all two thousand passengers and crew had strangled in the foul air.

George Bolles glanced from his preoccupation with the pursuit plate as Junior Lieutenant Arnold King announced his approach with a click of magnetized shoes on the steel floor of the bridge. He was junior in rank only, a fleshy, dour man of forty who, because of some youthful indiscretion, had been frozen in the permanent rank of junior lieutenant, forbidden to command even the smallest Security ship. George knew that King hated him cordially, hated every man who held a higher rank that his own.

And yet he saw that for the first time King looked at him with excitement rather than contempt. He held out the strip of tape without a word.

George took it, read, "Genesee from flagship: You trail only human to escape attack web. Wink Midas not on Midas I. Good hunting."

"I should have realized!" George said.

The Security fleet had overpowered the patrol ships before they could signal the alarm to Midas I. Silently the forty ships had crept in, neutralizing the watching screens, overpowering guards after they had landed, inerting the drives of the ten attack ships which comprised the Midas fleet. Only the Genesee and one other light cruiser had remained in orbit around Midas I. The Genesee had been closest when the tiny ship had flamed up from Midas I, and George Bolles had, after a few minutes delay, snapped the bigger ship into the pursuit formula, automatic pilot set to follow each variation of course, engine roaring at maximum.

"My sister was on the Denver, sir," Arnold King said flatly.

"You never mentioned that before, Arnold!"

"There was no point in mentioning it before, sir. That was five years ago. I've been—eager to meet Wink Midas."

There was no mistaking the hate behind the quiet words.

"You know the regulations under which we operate, Arnold. You know them better than I do. "Security personnel do not punish. Security brings violators of interplanetary law to the proper courts for punishment. Self-defense is not an excuse. No Security officer will place himself in such a position that he must kill in self-defense.' "

"It isn't necessary to quote the rule book—sir," King said, his thick lips compressed.

"Sorry, Arnold. I wanted to make it clear right now, at this stage of the game, that Wink Midas will receive exactly the same treatment as anybody else. Our job is to grab him and take him back. That's all."

King saluted, more smartly than was necessary. "Yes sir!" he snapped. He about-faced and walked back to the compartment door.

"Wait a minute, Arnold!" George said. "I want your advice. If the boss is right, that man ahead of us is as clever as a fox. His whole organization is shot. He realizes that. He knows that if we take him—they'll shock his mind down to an animal level and turn him over to the labs on Venus. His first thought will be to escape; after that he can think of setting himself up with a new identity. And it might not be too hard. Nobody knows what he really looks like underneath that beard. If you were Wink Midas, what would you do?"

Arnold King walked slowly back, pulled himself down into the copilot chair beside George Bolles, snapped the belt across his thighs.

"Sir, he's got the advantage of us in two ways. More maneuverability, and the knowledge that we want to capture, not kill. If we don't kill him, we may not get him."

"Where would you head for if you were Midas?"

Arnold King permitted himself a smile. "Exactly where he's headed. One of the thickest asteroid belts in the known universe."

George indexed the proper star map, flicked the light on under it. He made several mental calculations. "If that's where he's headed, he'll have to start deceleration within five hours. Otherwise he'll swing beyond it in such a wide arc that we can cut him off. At this rate, we'll catch him in twenty hours if he doesn't reduce speed. See if you check me on this. His aim will be to decelerate, dive into the asteroid belt and anchor himself on a big one, hoping that the metallic content of the asteroid he picks will be high enough to obstruct our search pattern."

"Right. And we can detect the area where he ducks in, and we can blast everything in that area."

George Bolles sighed. "Arnold, I understand how you feel. But we can't do that. If we lose him, we lose him. We don't kill."

WINK MIDAS awoke. He checked his instruments, and saw that the time was near; almost dangerously near. Once again he saw the answering flash of correction and made a small course correction. By the time nine seconds had passed, the jets were closer and brighter than at any other time during the ten days.

Fear was a thick hand at his throat. The asteroid belt was ahead. For ten days he had planned exactly what he would do. It was dangerous, but it pitted the crude strength of his body against the strength of those who followed him. That was the way he wanted it.

With the gyros he switched his tiny ship end for end.

He knew that on the cruiser they were already deciding that Wink Midas was going beyond the asteroid belt—that it was too late for deceleration.

His blunt finger on the jet controls, he waited. The seconds ticked by. The time came. He forced his big body back against the plastic foam cushions, tightened all the belts to the limit of his strength, shoved his head back so that his neck wouldn't snap, set the controls for a full five seconds of jet.

He flicked the control switch. His eyeballs were glowing flames forced back into the soft tissue of his brain. His tongue plugged his throat and his mighty ribs cracked. One foot had been an inch away from the chair brace. It smashed against the brace with a thud that numbed his leg. He screamed in agony, felt the tiny, angry rip of tissues, and it was as though he were being crushed between two steel walls.

The pain ceased. A spear of fire, jets foremost, went by him fifty miles away, unable to decelerate at that rate, forbidden by safety devices built into the ship itself, even if the commanding officer had been willing to accept a fifty percent mortality among his small crew.

He still moved backward, but at far less than the speed of light. The pain with the second burst was not so great, and for a moment the dials told him that his ship was nearly motionless with respect to the asteroid belt, moving rearward at less than fifty miles a second. By now the light cruiser would be far beyond the asteroids, straining to come to a stop, to reverse and return once more to pick up his trail.

He spun the little ship to the proper angle, gave the merest touch to the jets, looked anxiously in all screens for the friendly bulk of an asteroid. One grew on the port screen, looming through nothingness, touched vaguely with the light of distant stars, giving the familiar effect that it was he who was motionless, that the asteroid, some thirty miles in diameter, was a massive stone hurled at him by angry gods.

Once more he corrected course, adjusted his velocity to that of the asteroid, approaching its course at not more than a three-degree angle. There was no sign of pursuit. He watched all screens. The rough face of the asteroid filled the port screen.

At last the mass of it caused a minute alteration, and the small black ship drifted slowly toward it. The asteroid moved slowly on its axis. The hull of the little ship clanged hollowly against the zero rock, the rough desolation, bounced, clanged more softly, at last came to rest, rocking.

He yanked at the anchor lever. The spearhead drove down into the rock, expanded. The ship rebounded sharply to the end of the short length of cable, set-

tled slowly down to the surface again.

With motions oddly deft for so large a man, he slipped into the space armor, tightened the globular helmet with a practiced twist, set the oxygen supply, then cracked the valve on the ship itself. The air screamed out, forming tiny solid pellets that slid slowly down the hull, drifted to the rock.

He spun the hatch free, swung it aside, clambered metallically through the narrow port and floated, almost weightless, to the bare rock of his new world. Most of his fear was gone. The suit he wore was so designed that a man could live for two weeks in it—in considerable discomfort, but he could live.

And in two weeks they would give up.

To his belt was slung a slim, tubular weapon. It was useless against the cruiser—but if they came after him in suits. . . .

He looked around him. He saw a miniature world, a black, hard world of shattered rock. A hundred yards away was a cliff fifty feet high, pocked holes in the face of it. On such a world, this was a mountain range.

With the ease of long practice, he reached the cliff in two bounds. He slid into one of the holes in the cliff face, sat so that his back was against one wall, and he could see the black heavens.

Let them look.

"MAYBE it killed him," George Bolles said sullenly. But as he said it, he knew that he had been out-generaled. He shuddered to think of the report he would have to turn in. Pursuing the great Wink Midas, and then evaded as though he were a child of ten. When he had known that it was no longer possible for the human frame to bear the deceleration necessary to enter the asteroid belt, Midas had done exactly that, while they had shot by, helpless, frustrated and angry.

"It didn't kill him, sir," Arnold King said. "Not that one." He pointed to the chart. "He entered the belt at about this point. The asteroid bodies in the belt have almost a constant orbit. Three hours have passed. He should be in there somewhere."

"There covers four million cubic miles, Arnold."

"It would be difficult to explain if we fail to find him, sir."

"I see what you mean. All right. We'll cruise up to that point right there, and use that asteroid as reference point for the search."

THERE was no day or night, and no way of knowing the time without going back to the ship. Wink Midas had slept twice.

He awoke, glanced up, saw the faint starlight glimmering from the sleek hull of the cruiser, and cursed bitterly. The search was over. They hung five hundred yards above his ship, settling slowly.

He heard the tiny buzz of the communicator. He lifted the metallic left hand of the space suit, palm toward his face, thumbed aside the small screen cover, pushed the nub toward the end of the slot which would enable him to receive without transmitting.

A young face filled the tiny screen. He saw by the collar insignia that the young man was a senior lieutenant.

"Wink Midas. Come in Wing Midas. Resistance is useless. This is the Security Cruiser Genesee. Come in Midas. Come out of your ship with your arms up. We are blanketing your jets. You cannot escape."

Midas felt a sudden surge of hope. They thought he was in the ship. With his smaller ship anchored, they would be unable to settle low enough to fasten their airlock to his port. They would have to don suits and while they were exposed. . . .

He slid the panel over the screen so

that they would not see that he was out of his ship. He pushed the nub over, said, "Come and get me, lieutenant."

Taking it off 'send,' he opened the panel. The young face was still there, but it was in profile. "I'll go in and get him, Arnold," the young man said.

"It's my job," the senior lieutenant said.

"I have better reason," another voice said.

Wink Midas grinned, glanced from the screen up at the ship which slowly settled. He moved further back.

Glancing back at the screen, his eyes widened as he saw the senior lieutenant try to avoid a blow. A fist smashed solidly against his jaw and he fell back out of range of the screen. A new face filled the screen. An older face; a face in which there was cold hate and fury.

"You don't know me, Midas. I'm Arnold King. Remember the Denver, Midas? This is a personal score I'm settling. I've locked the compartment door. The rest of the crew is trapped. I'm coming out after you, Wink Midas. And you won't live for a fancy court trial. You'll die on that pretty little world you've picked for a grave."

The screen went blank. Midas chuckled. It would be a pleasure to wipe out a hero. Maybe if he could do it quickly enough, he could enter the cruiser through the air lock, kill the senior officer and take over the control room.

As he settled himself into a more comfortable position, the cruiser scraped, touched, rebounded, settled gently on the far side of his tiny ship.

In the faint light he saw the slow revolutions of the circular hatch on the air-lock. It opened inward. The interior lights in the air lock were off. At least the man was that smart. Midas lifted the tubular weapon.

Suddenly he stiffened, and then began to curse. A thin cable lowered a small object down toward his ship. The man was cleverer than he had thought. The object dangled, touched the smooth black hull of Midas' ship, then rested quietly.

Swiftly it was redrawn. He slid the cover off the small screen. The familiar face, this time shielded in the distinctive space helmet of a Security officer, smiled.

"Very clever, Midas. Even you can't stop your heart from beating. And there's no heartbeat in your ship. Ergo, you are outside your ship. Which hole are you in, rat?"

"Come and get me, hero."

For a long time there was no answer. The airlock door closed, and he wondered as he saw it revolve into tight position.

The face of Arnold King in the tiny screen was suddenly brighter. Midas heard the rush of air inside the cruiser, saw King twist the helmet, lift it free.

"Come on, hero," he said to King. "Lift your ship and slam your jets on this cliff. Maybe you'll get me and maybe you won't. If you do, it's better than any other kind of death; I'll never know what hit me. The people on the Denver—they knew what hit them."

King's face convulsed with a fury as great as any Midas had even seen. In anticipation of the blast, he wiggled further back into the natural cave. It was even deeper than he had hoped.

Suddenly, with a blue-white flash from the jets, the cruiser sped away.

Midas felt the fear again—fear of the unknown; fear of the madman who guided the cruiser, the fat-faced man with death in his eyes. But a clean death would be better than the courts.

The cruiser was out of sight. Ten minutes passed. He felt a dull jar that seemed to shake the rock floor of his cave. He frowned. It made no sense to him. He could not imagine what the man was doing.

In a very few minutes he felt another shock. Then something completely inex-

plicable happened. He floated, rose against the cave roof. Another shock, and yet another. He was held firmly against the roof of the cave. He twisted his head so that he could see his ship. It stood straight out from the asteroid, the anchor line tight. The shocks came faster.

Then his ship pulled free, arrowed, without power, into the darkness and was lost. Suddenly he understood, and he screamed. His scream filled the helmet, tore at his ears. The man had backed the cruiser off, had blasted with his jets at an angle against the surface of the asteroid. With each blast of the jets, the asteroid had begun to spin faster on its axis, until, when centrifugal force on his body had outbalanced the weak gravity, he had floated to the roof of the small cave. Faster and faster.

And Wink Midas knew that the accelerated rate of spin would continue throughout all the rest of time.

There was one solution. Trembling, he slid back the protective cover of the palm screen. There were two faces in the small screen. The senior lieutenant, white and angry. The fleshy junior lieutenant, abject and apologetic.

"I—I lost my head, sir. I'm sorry. Temporary insanity, I guess. But when I saw what I had done, I suddenly realized that we didn't have to go outside to get him. I just spun the asteroid with full power until the rate of spin flung him and his ship free. See, his ship is right ahead, still blanketed. We can grapple it, and tow him in."

His lips trembling with anxiety, Wink Midas said, "But I'm not in my ship. I'm here. Back on the asteroid!"

They paid no attention to him. Obviously the screen was set to send, not receive. The senior lieutenant lost his look of anger. "All right, Arnold." He fingered his bruised jaw. "Officially, I'll forget it. But I thought you wanted to kill him."

Midas wondered if it was his imagination that showed Arnold King giving a quick glance of sardonic amusement at the screen. "No sir. I can see that it will be better if he stands trial."

The screen slowly became less distinct as the cruiser reached the outer limits of the communicator. In shrill hysteria, Midas screamed, "Don't! Don't leave! You'll never find me again!"

The screen went dead.

For nearly an hour he made futile attempts to claw his way toward the cave mouth, but it was as though he'd been welded to the roof of the cave—welded by centrifugal force.

He took the tubular weapon, aimed it at himself. But he could not pull the trigger.

A spinning coffin for Wink Midas!

Slowly at first, almost with humor, he began to laugh.

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Deep in his heart he knew there was only one thing he wanted now—to return to the zone of silence. . . .

*For a year Barnett had probed the secrets of the Martian tower and its zone of silence; still he was no nearer to the truth. And now he realized he never would approach that deepest reality, until he followed the footsteps of his hours-dead friend into—*

# THE FINAL FRONTIER

LYING on the stone couch the Martian, Elso, opened his eyes and made a gesture in the sign language used in this place, a gesture which said: "Ship coming."

In other circumstances, the human, John Barnett, would have wondered what made Elso think a ship was coming. Now the problem of Elso himself occupied all his mind.

Elso was lying on a stone couch set in a cubicle carved out of solid stone. A candle on the wall gave the only light. There was only one exit from this cubicle —an opening which the Martian stonemasons were swiftly closing.

The tiny room was carved in the solid stone pillar which the Martians call Znakevog and which rises, a lonely signpost pointing the way to heaven, out of the sand of the Great South Desert. A strange place even to the Martians, and doubly strange to a human; a place of silence, of mystery, perhaps a place of miracles. So, at least, the Martians thought. But Barnett was a competent research man, and to him a "miracle" merely meant that laws as yet unknown were in operation. Some day the laws would be discovered. Then the miracles would be under control and would work for man, would help him chart the long road that he followed to his ultimate destiny.

Here in this place were laws that baffled John Barnett and customs that he did not begin to understand. If he lived a thousand years he would never understand the custom that motivated the final act of the Martian, Elso.

Of his own free will, Elso was permitting himself to be walled up inside this cubicle—to be buried alive—and not only was permitting it but demanding it as his due.

To the human mind such an action was incomprehensible. To the group of ascetics and mystics, the dreamers who lived in the temples surrounding the Pillar of Znakevog, this was the accepted way to die. When the time came—and each Martian determined the right time for himself by some system that Barnett could not begin to fathom—each entered one of these cubicles, and died there. Barnett had seen the cubicles opened and the dessicated bodies taken from them. But the Martians believed that some part of the body had been translated into another sphere. The body died. The soul stuff went elsewhere. They were vague as to the nature of the soul stuff or where it went but they were very sure it existed.

**By ROBERT MOORE WILLIAMS**

Barnett would have given his life's blood for the simple sureness of their belief. To him, it was impossible to talk about soul stuff. No camera had ever made a picture of the soul, no scale had weighed it, no eyes had seen it, no instrument had detected it. If it existed, it was the stuff of dreams, the imponderable, and between it and the forces and the magnitudes with which science worked—the measurable, weighable, computable forces of ordinary space-time—there was an uncrossable gap, the gap of chaos. And across this gap no bridge had ever been built except the pathetic bridge of faith.

Now the Martian, Elso, was about to set his foot upon that bridge.

Barnett's hands moved in the sign language imposed by the silence of this place. "Elso, are you determined to do this?" Elso was his friend; he would stop this suicide, if he could.

"Of course," Elso's moving hands answered. "It is the time."

"But how do you know it is the time?"

"How do you know when the sun rises?"

"I can see it, I can feel it, I can detect it with instruments. But you cannot see what is going to happen to you."

"I can foresee it," the Martian calmly answered.

*Foresee,* Barnett thought. Is there a higher form of seeing? He did not know. The legends and the fables of two planets said there was, but he did not know.

"Just as I, in this moment, can foresee the ship that is coming," the Martian continued.

"Ship?" Barnett repeated. "Elso, stop this foolishness. We are doing important research into the nature of the zone. Come back with me to my quarters down below—"

"No, my friend, it is the time to go. I will not delay it." The Martian's hands moved in the sign of parting. "Good-by—" He closed his eyes.

Barnett felt a light touch on his shoulder and turned to face the second Martian, Gelkid. Gelkid motioned toward the exit. Together they moved out into the corridor, stepping over the wall of stones which was already knee-high. Barnett felt sick with failure as he watched the masons fit the last stones into place.

He and Gelkid moved along the corridor to the round window that opened out a hundred feet above the ground. From this spot they could see the temples surrounding the pillar and the desert stretching far away beyond the zone of silence. He looked through the round window, and blinked his eyes and looked again.

Down there on the sand, with much blowing of landing jets, a ship from Earth was coming down.

Barnett cursed the soundlessness of this place which kept him from expressing in words the questions rising in his mind. "Elso said a ship was coming," he gestured. Wonder moved in him. He started down the corridor, determined to open Elso's cubicle and probe this mystery to the bottom.

Gelkid caught his shoulder. The Martian's face was sympathetic but stern. He made the sign of negation.

"But he said a ship was coming. I want to know how—"

"So do I, and so do all of us, my friend. But we will never find out by disturbing him. Sometimes in the last hour comes a moment of foresight in which the future is made clear. It is by this foresight that we know when to enter the cubicles. It was this way with Elso. Thus he saw the coming ship. But he does not know how he saw it."

Barnett had run head-on into a wall of belief that he knew he could not break down. But the fact remained—Elso had foreseen the coming of the ship. What else might Elso have foreseen? And what was the real nature of this Pillar of Znakevog where Martians sometimes caught glimps-

es of the future and where they allowed themselves to be walled up to die, believing thereby that some part of them would be set free to cross the gap of chaos?

Fear moved through Barnett like a rising wind, grew stronger as he realized the significance to him of that ship landing down there, blowing clouds of dust high into the air in the clumsy, difficult, unnecessary jet landing process.

No Earth ship had landed here in the year he had been in Znakevog. The Martians said that no ship ever landed here; it was one reason he had come to this place. There was a spaceport in the zone of vegetation to the far north, where Luederson's tremendously expensive freight and passenger rockets landed in the sporadic traffic between the two planets.

Luederson? In the year that had passed he had forgotten Luederson. The arrival of this ship could only mean that Luederson had finally traced him here. At the thought, panic struck Barnett. Had Schultz betrayed him to Luederson? Schultz was the only human who knew he was hiding here on the Great South Desert of Mars.

He put the thought out of his mind. He would bet his life on the dogged loyalty of that sandy-haired technician, Osmer Schultz. This ship was here by accident, he told himself. Perhaps a scientific expedition—

HE WATCHED the ship come down, the pilot doing a neat job of handling a difficult operation. A drive existed that would set this ship down feather-light there in the desert and would lift it up again without disturbing so much as a single grain of dust—a drive that did not function against inertia as did rockets and jets but reached for its toehold into the secret, hidden structure of space itself. The ship down there was not equipped with the drive. Nor was any ship anywhere in the Solar System, yet.

In the airlock men appeared, dropped lightly to the sand against the lesser gravity of Mars, five in all. As if they knew exactly where they were going, they advanced toward the Pillar of Znakevog. The weapons they carried and the alert easy way they handled them were clear. At the sight of the weapons, Barnett knew that this was not a scientific expedition. "But even if they are pirates, they are not after me," he told himself.

The five men struck the edge of the zone and stopped abruptly, like marionettes. Barnett, watching, felt a little sorry for them. They had run up against the zone and they didn't know what it was. As he watched they moved hastily back a few feet, out of the zone, and stared around as if expecting attack. They moved hastily back to the ship—and reappeared with instruments.

*Trying to find out what makes the zone,* Barnett thought.

It was an effort in which he wished them luck. So far as he knew there was only one instrument, and that one evolved by nature, that revealed the existence of the zone—the ear. No radio receiver he had been able to design, operating over a vast range of frequencies, had revealed the existence of the zone. No photographic plate was fogged by the zone, no electroscope discharged, no cloud chamber unduly disturbed. The zone was invisible to the eye. It was a natural phenomenon generated by some ore or some combination of ores in the Pillar of Znakevog, and it surrounded the Pillar as a circle of complete silence. Within this circle, which had a circumference of approximately three miles—the Pillar itself being half a mile thick and rising the same distance into the air—the ear did not hear.

Sound waves were propagated here. A tape recorder caught them and if taken outside the circle and played back, the recordings could be heard. So the trouble

lay within the mechanism of the ear. Although no instrument had detected it, there was present in the zone some subtle radiation—force, pressure, or absence of same—that stopped the functioning of the ear mechanism itself or of the connective tissue transmitting the sensations from the ear to the brain—Barnett didn't know which.

What else was present in the zone of silence?

The Pillar itself, Barnett thought, was probably a meteorite, a space wanderer that had come to rest here on the Martian desert after an infinity of wandering between the stars. Probably, but not certainly. There were times when Barnett found himself wondering if this black basaltic stone which the Martians had honeycombed with passages were actually matter from this continuum. Or had it come from some other space-time? Had it crossed the gap of chaos?

He didn't know, fretfully he feared he would never know. There were limits to his mind; to any mind. If he solved completely the problem of the origin of the Pillar, if he discovered, named, and described mathematically the radiation producing the zone of silence, if he learned how to generate and control that radiation, he suspected the only result would be the opening up of new mysteries. That was the way it worked on Earth, on Mars, and possibly in heaven. Was there no end to it? Or had Elso found that end in the calm acceptance of death, sustained by a faith that to another mind was only a suicidal delusion?

From the consideration of such problems the mind turned back, appalled at the maze confronting it, and sought refuge in the antics of men who had just met the zone for the first time and did not know what to make of it. They set up their instruments and obviously did not believe what their eyes told them. One went back to the ship again, and returned with another man clumping heavily before him.

At the sight of that man Barnett was aware of a strange sensation of constriction, as of tightening veins choking off the return of the blood, somewhere inside him. If there were a person anywhere in the system who could solve the mystery of the zone, this man could do it. The man was Osmer Schultz.

Schultz was also the one man in the System who knew Barnett was here.

Watching the way Schultz moved, the way the thug with him kept him covered with the gun, Barnett knew Schultz was a prisoner. What he had to do was also obvious now. Panic rising in him again, he made the sign of hiding to Gelkid. Desperation was in the gesture.

"Hide me, Gelkid, until that ship is gone."

There was no time for explanations. Gelkid did not ask for them. When a friend was in trouble, you did not ask what the trouble was, you did what you could to help. Gelkid led the way.

In a small temple on the opposite side of the Pillar from the ship, behind a door so cleverly concealed that the eye would never detect it, Gelkid hid John Barnett. "You will be safe here," Gelkid said in the sign language. "Once we hid one of our friends here for eleven years. But, to make doubly sure, I will go quickly to the men in the ship. When they ask me about you, I will tell them that no such person has ever been here." Gelkid was gone.

Four hours later he returned, smiling. "They are gone," he said. "The ship just blasted off. You can still see it, if you hurry, in the far sky."

"Were they actually searching for me?" Barnett asked, in the sign language. "I was never quite sure."

"They most certainly were," Gelkid answered. "They searched the whole area and left quite disgusted at their failure to find you."

"Thanks, my friend."

"It is nothing," Gelkid answered. "Do not mention it."

Barnett returned to his quarters. He was tired. The arrival of the ship and the search for him had been an emotional strain. Coming on top of Elso's action, it had left him with the drugged feeling of heavy fatigue. Gelkid, sensing his feelings, did not attempt to follow him. Alone, he entered the quiet rooms where he had lived for a year.

ACROSS the room a man sitting on a couch grinned at him over the muzzle of a gun. Three other men sitting quietly against the walls got quickly to their feet. The guns covered him.

The grinning man got up from the couch. His name, Barnett remembered, was Fell. He worked for Luederson.

The muzzle of a gun at his back, he was marched from his quarters.

Outside a Martian saw him, gaped at the men following him, ran protestingly toward them. A gun spat flame. There was no sound, but the Martian reeled backward.

Guns here in the zone of silence were new things. There were no weapons here of any kind. These Martians did not believe in weapons; against four armed men they were helpless.

Outside the zone, Fell spoke for the first time, to one of the men who carried a heavy box. "Get that radio going."

The box was swiftly opened. Fell grinned at Barnett. "They made signs indicating no human had ever been here, but we found your quarters and knew they were lying. We figured you were hiding and if the ship left, you would come out. Easier that way than trying to dig you out of that rat-hole." He gestured toward the Pillar of Znakevog.

"I won't go back with you!" Barnett shouted. He tried to break free. They held him easily.

"Do you want to go quietly or do you want me to tap you on the noggin?" Fell said.

From the temples the Martians were emerging to stare at the strange sight of four humans holding a fifth prisoner. They started forward, to ask questions. Fell raised the automatic weapon he was carrying. When the sharp bursts died away, two Martians were writhing on the sand and the others were fleeing back to the protection of the temples and the Pillar.

"That was cold-blooded murder," Barnett said, pale and trembling.

"Well, if it was, the boss thinks you're worth it," Fell answered.

From the box, the radio operator looked up. He was using code, kicking his signals into space from a collapsible antenna less than six inches long. "Got the ship, Fell. They're turning."

"Good," Fell said.

The ship came down in a long slant, blew sand from the desert in a heavy landing, and remained just long enough to load the four members of its crew and their reluctant passenger. When the blast-off acceleration was complete, Barnett was taken into the main cabin. There Luederson was waiting.

Luederson had a great thatch of iron-gray hair above a narrow, avid face. He was very polite. Only the fact that Fell remained in the room suggested that the meeting of Barnett and Luederson was anything but casual.

Barnett had regained his composure. "This is kidnaping. You can be gassed for this."

Luederson lifted heavy eyebrows in an expression of surprise. "My dear Barnett, kidnaping in deep space? There is no such thing. There is no law as yet in deep space. I could have you killed here and no government could claim jurisdiction—or for that matter, recover any evidence that a crime had been committed. And if it is kidnaping, what of it?" Anger

growled in his voice. Like a discarded mask, the politeness dropped from his manner.

"What do you want with me?" Barnett said. The quicker this came to a head, the better. He knew what Luederson wanted and had known it ever since he had discovered the recording equipment hidden in his moon laboratory.

"Complete construction details, including blueprints, and a working model of the drive you invented," Luederson answered.

Barnett was silent. The drive was the work of his life. It would lift a ship without disturbing a grain of sand on the landing field, without spilling the soup on the mess table. To a man who knew spaceships, the drive was worth any sum of money anywhere in the System. It made the old rocket and jet ships obsolete. It opened up the planets to regular travel, perhaps the stars as well. The man who owned it exclusively, if given the time to equip enough ships in secret, was the master of the System. It was a prize worth striving for, worth killing for, if you were a killer. Luederman was.

"I don't know what you're talking about," Barnett said, knowing it would get him nowhere.

Luederson's face was bland. "Let's not be childish," he said. "A recorder continuously taped every sound in your laboratory. Toward the end of your experiments, when it was obvious that you were going to be successful, a hidden high-speed camera was installed. I know more about you than you know yourself and almost as much about your drive, except the fine details of the model, which the cameras did not catch, the composition of the alloys, the energy source you are using."

Barnett sighed inwardly. The camera he had not discovered but he had found the microphone of the wire recorder, too late to do anything about it. It was the discovery of the microphone and with it the knowledge that he was being spied upon that had driven him to destroy the model he had made and all working plans, that had sent him into hiding here on Mars. He had no illusions that a lone inventor could stand up against Luederson.

Like a cat, Luederson watched him. "You will be adequately paid for your services," the man continued. "Any price you want you can have. I want the drive."

"Go to hell," Barnett answered. He didn't need Elso's foresight to know what would happen to him once he had revealed full construction details of the drive.

For an instant he thought Luederson was going to spring at him, but the man caught himself. Quick anger came and was gone and confidence replaced it. "There are other ways." He nodded to Fell. "Take him to Schultz."

Fell prodded him away and into a locked cabin and left him there. He heard the lock click behind him.

From the bunk the haggard face of Osmer Schultz looked up at him. Then Schultz was on his feet groping for his hand, trying to talk and choking over the words he had to say. "Johnny, you shouldn't have told me where you were going. Somehow they found out or guessed I knew. They kidnaped me and shot me full of pentathol—the truth serum—and I spilled everything."

"Pentathol! Lord, I might have guessed it." It was clear how Luederson planned to get the construction details of the drive. And there was no way to stop him. Barnett was silent.

From the corridor outside, rising above the drone of the tubes, came a sharp crack, followed instantly by two more.

"Pistol shots!" Schultz said. "What the hell is going on?"

The shots came again, a barrage of them, then silence. The two men stared at each other, mute questions in their

eyes. "Maybe the crew revolted and shot Luederson," Barnett hopefully ventured.

"And maybe they didn't!" Schultz snorted. "This bunch is handpicked. There isn't a man aboard who wouldn't cut his grandmother's throat if Luederson told him to."

The pound of feet sounded in the corridor. No more shots came.

"If it was a revolt, it has either succeeded or been completely squelched," Barnett said. For a moment, while the shots echoed, new hope had risen in him. Perhaps, if the crew did rebel and overthrow Luederson, somehow or other he might escape and return to the Pillar of Znakevog. Deep in his heart he knew there was only one thing he wanted now —to return to the zone of silence, to explore the properties of that place, to discover the secret hidden there. If the solution of one mystery only opened up another before him, well, that was the way it would have to be. But something vast, something breathtaking in its immensity, was hidden at the Pillar of Znakevog. This he knew now. And he would go back, if he could. The catch was—

A SHARP thud passed through the ship and the drone of the driving tubes changed. Beneath their feet the vessel yawed.

"That was the steering tubes!" Schultz exclaimed. "Johnny, this ship is changing course." He rattled the steel door on its hinges, yelling for someone to open up. There was no answer. The ship yawed in a circle.

Later, the drone changed and a new sound echoed through the steel hull, a howl that both instantly recognized as the blasting fury of landing jets beginning their job of gently lowering this mass of steel toward the surface of the planet below them.

A hope that Barnett did not begin to understand was rising in him, a hope as subtle in its origin as the faith of Elso, a hope that moved into the brain-cells like a ghost from another universe, whispering, "Courage. All will yet be well." It was wishful thinking, he told himself. It was self-delusion. He wanted the ship to return. Therefore he believed it was returning.

But the ship *was* returning. He could feel its deceleration beneath his feet, he could hear the howl of the landing jets. It came to rest in a heavy landing and the howl of the jets vanished into silence. The lock clicked and the door was opened. The face of Fell looked in.

Fear was on Fell's face. It showed there in a gray color and in sudden drops of moisture. Fell looked wilted. His eyes looked at them and saw them but behind the eyes was the glazed look of a man remembering an event he has seen and knows he has seen but does not choose to believe. He jerked his thumb over his shoulder.

"Out of here, you two. Fast."

"What's wrong?" Barnett spoke. "What happened?"

Fell was so bewildered he was willing to talk. "A damned stowaway happened, a Martian goon." A shrill note crept into his voice as if he knew his memory was lying to him. "I caught him in the stern passageway and took three shots at him." He still held the gun in his hand and he looked at it now as if he could not believe it had failed him. He shook his head. "How I missed that goon I'll never know. But miss him I did and every other gun that took a crack at him missed too. Before we could stop him, he got into the boss's cabin. We're landing you two."

"Landing us?" Barnett repeated the words as if there was about them something too miraculous to believe.

"The boss says to," Fell answered. "That damned goon is in the main cabin

*(Continued on page 128)*

# THE SCIENCE FICTIONEER

## Conducted by Frederik Pohl

These reviews are offered as a service to science-fiction readers, to help guide them in the selection of worthwhile science-fiction and fantasy books. For further information on these or any other fantasy books, send a stamped, self-addressed envelope to the Book Review Editor in care of this magazine.

**THE LAST SPACE SHIP** *by Murray Leinster. Frederick Fell, Inc.*

This is the story of Kim Rendall, a matter-transmitter technician who has incurred the punishment of the Disciplinary Circuit—a psycho-electronic device which keeps the common people of his era in slavish submission to their rulers, for any thought of rebellion is instantly detected and harshly punished. But Rendall has a trump card or two in his hand, in the form of a spaceship—a museum piece, outmoded by the matter transmitter, but still his own property—and a keenly inventive mind. With them he takes on the fat overlords of the universe—and wins!

Murray Leinster, under that pen-name and his real name of Will F. Jenkins, is among the most talented and prolific writers of science-fiction today, and the present book is fairly representative of his capacity to evoke excitement and enjoyment in the reader. *The Last Space Ship* is not a major work, but it provides an excellent evening's entertainment. If the theme of the book is thin, the incidents that develop the theme are carefully thought out and the characters are real. It is a book that you can safely recommend to your non-fantasy friends—and, at the same time, one that you will enjoy.

**EARTH ABIDES** by *George R. Stewart. Random House.*

The writer whose bold use of a thunderstorm as the hero of his first book won him immediate acclaim has now turned his attention to the field of science fiction. The results are to be viewed with mixed emotions. Undoubtedly Stewart is one of the most literate and meticulously accurate writers alive; when a bit of plumbing goes out of kilter in the present book you are taken back to the original slipshod inspection of a faulty section of pipe in the main aqueduct—and you even find out what made the inspector drowsy enough to let it slip by. His reconstructions of the remorseless logic behind so-called "accidents" are things of beauty and deserve to be required reading for science-fiction writers of the "so this asteroid just happened to be in the way of the ship" school. And his knowledge and comprehension of things is only exceeded by his insight into the minds and emotions of people.

All the same, *Earth Abides* is a disappointing book for science-fiction readers. It is the story of our planet a few years from now, after a sudden and devastating

plague has all but exterminated the human race. A solitary man who had been off in the mountains when the pestilence struck returns to civilization—to find that civilization has passed away. . . . Eventually he finds other people, and eventually he sees the beginnings of a new human race. But, though Stewart says it very well, there is nothing to be said in this story that has not been said in a hundred science-fiction stories before.

**THE WORLD BELOW *by S. Fowler Wright. Shasta Publishers.***

Here, in a new edition, is the story that many connoisseurs consider the finest science-fiction novel ever published. *The World Below* is a time-travel story that leaps half a million years into the future, to a period in which mankind no longer exists as a single race but has been mutated into two major groups—a sleek-bodied race of Amphibians and a dying, super-scientific civilization of giants—and a host of tag-ends of unsuccessful mutations. Like a handful of science-fiction's best writers, Wright has had the courage to push his imagination to its farthest limits to foresee a future in which there is no more resemblance to the 20th Century than there is between our own time and the day of the saber-toothed tiger. Like almost no one but himself, he has managed to suggest the strangeness of the very far future in terms which are understandable without being trite.

At its semi-luxury price of $3.50, it is a pity that the book could not have been better printed on a more attractive book paper, for it cannot be compared with the handsome productions which have become standard in the science-fiction field. But at any price, *The World Below* is a bargain in fine science-fiction reading.

**THE BEST SCIENCE-FICTION STORIES: *1949. Edited by Everett F. Bleiler and T. E. Dikty. Frederick Fell, Inc.***

The first book in the Fell's Science-Fiction Library series is a rather pretentious selection of science-fiction stories originally published during the year 1948. It is hard to imagine any book calling itself the "best" of anything that would not immediately invite violent and sustained arguments from anyone familiar with the field; but, even making allowance for this, *The Best Science-Fiction Stories: 1949* appears to contain an unusually high proportion of routine pieces, probably included for the sake of the authors' names, and at least one uncompromising dud.

On the credit side, there are several truly outstanding pieces, among them Wilmar H. Shiras's *In Hiding*, the story of a mutant boy genius. The volume is an attractively made book, with a noteworthy cover by Frank McCarthy.

**THE KID FROM MARS *by Oscar J. Friend. Frederick Fell, Inc.***

The year is not too far in the future, and the scene is Meadowbrook, Long Island, where the World's Championship polo matches are being played out before a television audience numbered in the hundreds of millions. The game is interrupted by a strange vessel which floats to a landing between the opposing teams. A hatch opens, and out steps a humanoid figure—Llamkin is his name, as it turns out, and he has come to the Earth in search of something that his native Mars has lost: a sense of humor.

The story goes on from there for some 268 pages, getting itself involved in the routine complications and twists of plot that follow from the opening situation. It is the publisher's opinion, as stated on the jacket of the book, that this is "science-ficion at its ironic best". He couldn't be more wrong. Of irony there is none at all; and of humor there is only the sort to be found in the conversation of a motion-picture bigwig, one of the central characters of the story, who says in a particularly poignant passage:

*(Continued on page 127)*

# The LONG DAWN

## CHAPTER ONE

### The Third Awakening

THE MAN was called Chark. He was seven feet tall, and had tremendous shoulders. His skin was bronzed; his stomach was lean and flat. He was naked.

He stood up straight and looked around the time-vault. In the faint glow of radioactive light he could see the female in her bed of moss. She was still sleeping in spite of her broken back, and he was glad. But the child near her was beginning to move restlessly. Chark wheeled and went quickly to the opening. Lagh, the tyrannosaurus, followed him.

He stopped for a moment just outside the steel-and-lead door. Then he stepped out upon a great slab of granite. His night-seeing eyes swept the mountain above and

**The female was still deep in her hundred-millenium sleep, and Chark was glad. . . .**

## An Unusual Novel by NOEL LOOMIS

behind the vault. He saw no danger there, and turned his attention to the valley below, listening with ultra-keen ears for the lumbering of a quarrelsome stegosaur, testing the wind for the rank stench of a hungry phrysonoma.

His ears detected running water at a distance, but he could not find the organic dankness of Jurassic mud or the fetid lizard-smell that always had hung over the Great Salt Marsh. The world must have changed, and he could only hope that Man

***Out of the prehistoric mists came Chark—half beast, half god—pursuing a fantastic quest that had spanned a hundred million years—and would not end until Earth's ultimate millenium!***

had changed along with it, for the better.

He studied the valley. Five hundred feet down was a meadow, and a quarter of a mile away, almost where Old Grak had once had his laboratory, was a small group of buildings. Chark watched them for a moment. There were lights in the buildings. He raised his eyes. Far off was a great cluster of tiny twinkling lights as if many buildings had been built in a group.

Chark looked again at the first buildings. Then he stepped lightly down from the rock and vanished into the darkness. The tyrannosaur followed. A moment later he stood in the meadow, looking up a little slope toward the small group of buildings. His hair, black and straight, was long at the sides but clipped above his eyes. He stood alert but unafraid and watched for movement while he tested gently with ultra-sensitive perceptions to determine what sort of creatures might be inside the buildings.

Chark was hungry—ravenously hungry, for he had been in the time-vault, along with the female and the young one, and Lagh the tyrannosaur and Sala the pterodactyl, for a hundred million years, and during that time he had been awakened to eat only two times. In the vault, his body-processes had been extremely slow, but he had been there a long time.

In the tall, square building on his left, he knew at once, were men. He could feel their emanations more clearly even than his peculiarly developed eyes could see the building against the stars. In the other buildings, which were bigger, were other mammals—all of them, if he could still judge after these long years, being of unfamiliar species.

Chark's night-seeing eyes came to a small building. His lips parted and his mouth worked hungrily. There were birds in that building. He could detect their restless, fluttery minds. But in spite of his hunger, he took an instant to note that Man was now building shelters for mammals and birds. That was good; perhaps Man finally had reached a period of selflessness.

Chark started forward, then paused. The development of mammalian life was an unexpected turn—especially so with the apparent total absence of reptilian forms. He'd better be cautious.

But Lagh, the great tyrannosaur at his side, was impatient. The big saurian's gizzard was grinding on bare stones, and his jaws were working nervously. Chark felt sorry for him, because Lagh's fifteen-ton body demanded a lot of food. But still Chark held him back. They were strangers in a strange world, and Chark didn't want to do anything precipitous that might give modern man a bad impression of him and his companions. Lagh's brain was whimpering but he obeyed.

Over Chark's head Sala, the twenty-foot pterodactyl, swooped up and down exitedly on her leathery wings, waiting for the word, for Sala was hungry too. Chark sent her an emanation of reassurance. He listened with his mind for another instant, then he started forward again. Lagh lumbered behind. Sala fluttered into a long forward glide.

After the first few strides, Chark moved ahead at full speed. He covered the two hundred yards in an incredibly short time, and entered the bird-building. It was very small. He had to double up to get through the door.

The birds were roosting in a huge cluster. They were fully feathered, which itself was astonishing. Most of the birds Chark had known were covered with a leathery skin, like Sala. At most, they had a few tail and wing feathers.

These were fat, too—not tough and stringy. They made an awful squawking when he grabbed them. He got two and started eating one. Then something made him uneasy.

He heard the tyrannosaur crunch into a big animal that squealed horribly for a moment, and the pterodactyl seized something that went "baa" so loudly and so continuously that he could trace Sala's flight by the sound.

Clark was glad they had found food; especially for Lagh. The big tyrannosaur could eat five hundred pounds of meat a day. Clark bit into the bird again. He was glad, too, that Sala had minded him and stayed away from the building that contained the men, for Sala might think she was still back in the Jurassic Era where men fought each other and all animals and the only rule was to attack.

Clark felt a presence, and stopped chewing, with the bird in his hand halfway to his mouth. Then he turned back to the opening through which he had come. A ligh caught him full in its beam. He felt sudden consternation from a man, then danger.

HE LEAPED toward the opening. He brushed the light from the man's hand and pushed him over as he went, doubled up, through the door. He heard a great noise and saw an instantaneous brilliant flash, something like the explosion of his own first atomic bomb, but millions of times smaller.

Three things he learned in going through the opening: this man wore clothes, and he had a bomb of some sort, perhaps a very tiny atom bomb, although Old Grak, the director of research in the marsh when Chark had left the Jurassic Era, had assured them that atomic fission could not be induced with small amounts; also, Man was a weakling. If the man Chark had brushed aside was a representative specimen, Chark could move ten times faster and probably with many times his strength.

So Chark, running at half-speed and easily leaping all the obstructions in his way, although once he came down in the herd of animals that made oinking sounds, met Lagh and Sala in a little grove a mile away. Lagh was noisily devouring his meal, bones and all, and Sala was tearing hers into the strips which she gulped unprettily.

Chark finished the second bird and patted his stomach. He was ready to sleep until daylight, but first he had to find a place to hide Lagh. He followed the sound of the running water and came to a small river. He took them along the bank until they found a deep pool fringed with tall marsh-grass. Lagh was getting sleepy now that he was full, and so he obeyed readily. He got down in the water until only his head was above the surface, and that was well hidden by the grass.

There were trees on the shore, and Sala could stay in the top of a big one. Chark himself could drape his arms and legs over a couple of limbs and sleep quite comfortably.

He was well pleased. He had found Man—Man with a culture of some sort, apparently, for he built large buildings where many could live together. It was far different from a hundred million years before, when every man had to sleep in a secret cave camouflaged with brush to hide it from other men, or in the top of a great fern so that anyone who might come near would sway the fronds and awaken him in time for defense. Chark slept well, for now he felt that at last he would find help for the female back in the time-vault on the mountainside. . . .

THE SUN was barely up when Chark was awakened by the yapping of a dozen small mammals moving across the meadow with completely incomprehensible circuitousness. There were men behind them, so Chark started down. He would take no chance on Lagh and Sala. If those two should get into a fight with the men, the

men might be injured—and severely.

Lagh was out of the pool, dripping mud and water, when Chark jumped to the ground. Lagh was big, and he looked bigger in the morning sun. Lagh was fifteen tons of the deadliest fighting machine on Earth. His three-toed hind legs were enormous; his torso and an extremely heavy tail served to balance each other, for Lagh walked upright on his hind legs. He stood twelve feet high, with tiny front legs folded across his chest, a short neck and a too-large, bony head fitted with great jaws and fearsome teeth. He was covered with overlapping horny scales. He was afraid of nothing and his one mode of conduct was typically Jurassic: attack.

He attacked for food and whenever he considered it necessary in self-defense, but even in these matters he was amenable to Chark. When Lagh was less than half-grown, Chark had pulled him out of the mud one day where he had been trampled by a herd of angry brontosaurs, and Lagh, in almost embarrassing gratitude, had attached himself to Chark so strongly that he would roam the fern-forest within sight of the laboratory all day waiting for Chark to come from work, and then he would guard him all night.

Now, when Lagh himself was facing unknown danger, he stood uncertainly and looked down at Chark. Chark ordered him back into the pool. Lagh went, but when he had sunk into the mud and water until nothing showed above the surface but his protruding eyes, he looked at Chark and there was a wimper of fear in his mind—not fear for himself but for Chark.

Chark smiled briefly and reassured the saurian. Then he cautioned Sala to stay in the trees. Sala would probably obey him, and Lagh would too—as long as he could. But when the tyrannosaur got hungry again, he'd be nervous. Chark promised them both that he would be back by night and help them get something to eat; he walked out to meet the men. Certainly, he thought, men must now live in a world free from fear, to judge by the loudness of their voices across half a mile of meadow.

The sun felt good on his broad back. Suddenly the dogs began yapping more and started toward him. The men also yelled at each other, and Chark frowned. He did not know if he would like a civilization where every one made so much noise with his mouth.

The dogs ran up to him, but it required only a very small mind-command to quiet them. They lay down in a circle around him. The men suddenly became quiet too, and Chark caught emanations of fright from them. He quieted their fears and strode up to them. He stood there and smiled, towering over them by two heads. He wondered why these men were so small.

CHARK searched their minds fleetingly. There was a feeling he didn't understand. Then one of them, staring at Chark, said to a smaller man: "Billy, you run back to the house and tell your mother to get the girls inside." The smaller one ran back. A fat-stomached man with a metallic star-shaped ornament fastened to the strange clothing he wore, walked forward. Chark felt admiration for the little man, who was obviously puny but who didn't seem as scared as the others.

"I'm sheriff," the man said. "What do you know about them great big chicken-tracks?"

He pointed. Chark saw the three-toed tracks of Lagh's enormous hind feet, but he wasn't ready yet to explain. There was too much hostility present. He did not answer.

A thin, wrinkled man whispered in the sheriff's ear. Chark felt like smiling, for he read the man's mind before the man

whispered the words. "It was him eating a chicken—raw!"

The sheriff began to look uncomfortable. He looked Chark up and down, and sighed. "If I was as husky a specimen as you, I might go in for nudism myself," he observed. Then he turned, businesslike. "You better come along with me."

Chark went. They led him back to the farmyard. The sheriff gave him a blanket, and Chark put it around himself to please the sheriff. If they were concerned that he might get cold, he'd humor them, although it was silly, in a way, for back in the Jurassic Era Man had developed a tough, thick skin in place of fur.

The sheriff opened a machine and invited Chark to get inside. It was a little small for Chark, so obviously all men were small now. It was a nice machine, but Chark did not think Old Grak would have approved its apparent complexity.

"You better put him in front, Sheriff, and I'll ride in the back seat with a shotgun," said the wrinkled man. "Somehow I don't like his looks—a feller like him running around naked and eating live chickens."

"Never mind." The sheriff did not seem perturbed. "I won't have any trouble with him."

Chark did not know what a shotgun was. He sensed that it was a weapon, and he thought these men might be surprised to know what a strong weapon it would take to injure him.

He liked riding in the car, though it was noisy. Noise seemed to be characteristic of this age. The car went very fast—faster even than Lagh could run. They followed a hard-surfaced path for some miles until they came to a large group of buildings arranged in rows with paths between the rows. This pleased him, for it meant that men had learned to trust each other in very large groups.

They stopped before a stone building, and got out. Chark was taken to an opening not high enough for him to go through without bending, and presently he faced a white-haired man with tiny pieces of glass before his eyes, apparently to assist his eyesight; he sat behind a large book. He stared at Chark for a moment and swallowed.

"Quite a physical specimen, eh?" he said admiringly, and for an instant Chark let the muscles ripple along his arms. The judge's eyes popped wider. "But that's no excuse for running around like that," he said, and started writing.

"Name?" he said.

Chark waited.

"Name?" The man sounded impatient.

Chark spoke. "Chark."

"How do you spell it?"

Chark put it in the man's mind.

"First name?"

"Chark."

"Okay. Chark Chark. Where you from?"

Chark had to dig deep into the man's subconscious to find the words he needed. "The Jurassic Era," he said.

The judge looked grim. "Where'd you come from, mister? And no wisecracks."

"From the mountain." Chark pointed.

The judge raised his eyebrows. "From the mountain, eh? Makin' any moonshine up there?"

Chark smiled and shook his head. No, he had had nothing to do with the moon up there.

"Okay. The charge is disorderly conduct." He looked contemplatively at Chark. "Can't very well plead anything but guilty." He wrote in the big book and then looked up. "Ten dollars and costs." Chark said nothing.

"Or ten days," the judge said. Chark did not answer. "Okay, then. Take him away, Sheriff."

The sheriff looked hopefully at Chark. Chark read the sheriff's mind quite easily. In fact, he could have done that from the sheriff's eyes. He followed.

## CHAPTER TWO

### The Slaying of Grak

THE SHERIFF led him into a small room walled by steel bars. He closed the steel door and did something to it, and Chark knew he had locked it. Then the sheriff wiped his brow.

Chark was amused. Those puny bars—he could twist those into spirals. He could have controlled the judge, but he did not want to interfere in Man's new social structure. He sat down and waited. Soon they would send their scientists to see him. Back in the Jurassic Era, Old Grak would have been here before now.

But at noon the sheriff brought around a big plate of food. Chark gulped it. The sheriff said, "Tried to find you some clothes, but there ain't any big enough in town. Guess you'll have to use the blanket."

Chark didn't bother. He was quite comfortable. He lay down on the floor and took a nap while he was waiting for the scientists.

He awoke with a start. It was dark. He was hungry again, and it struck him with a pang of conscience that he had ordered Sala and Lagh to stay hidden and had promised to be back by night and help them find something to eat.

He took hold of two of the iron bars and pushed them apart. The space they made wasn't wide enough for his chest, so he twisted them off entirely and spread two more. He leaped through and walked down the corridor to the light.

The sheriff was just coming in from outside. He stared at Chark and said, "Did you pick the lock?"

Chark ignored the question. "I want to see your scientists," he said. "And please hurry." He wanted to establish contact, and then he would hurry back to help Sala and Lagh find food.

The sheriff looked at him. "I'll see what I can do," he said pleadingly, "if you'll go back in the cell and stay there."

Chark went back. He trusted the sheriff, but he thought about Lagh and how hungry the big tyrannosaur would get, and he was worried. He knew the female back in the time-vault would be getting hungry too, but she would behave. Anyway, a human could go hungry for days without doing anything impetuous.

It was the female's broken back that worried Chark most. With the time-vault open again, she would undoubtedly be awake and her broken back could cause a great deal of pain. He wished the scientists would come so he could learn how to care for it properly.

Old Grak had had the greatest intellect of the Jurassic Era, but he had refused to let anyone spend time learning anything about the human body. "If one gets sick," he said, "it means he's a weakling and should die. The race won't get to be a strong species if we preserve the weak." And so Chark, with no knowledge of anatomy or medicine, had been helpless with the female's injury. Now he wished the scientists would hurry.

But it was an hour before anyone came. Then it was a serious-looking young fellow. Chark searched his mind at once and knew there was no technical knowledge there that would help him. Still Chark was interested, because the young man's mind was worried. Chark answered questions while he searched the fellow's mind a little further.

"I'm Henderson, reporter for the *Tribune*," the young man said. "Is that your real name—Chark Chark?"

"Chark," said Chark.

"Where you from?"

"The Jurassic Era."

The reporter squinted at him for a moment. "Well, what town are you from?"

"No town," said Chark. "From the Great Salt Marsh. I was a research work-

er in Grak's laboratory; nuclear physics."

The reporter shrugged, and Chark saw that he did not believe. "Okay, if that's your tale, mister." He sighed. "You look like good material for a story. Big enough for two ordinary men, Weissmuller build, Palm Beach bronze, and waging a one-man war against the high price of white shirts—to say nothing of pants and shoes. Say—" his brow wrinkled—"how did you ever learn anything about the Jurassic Era?" His eyes began to brighten. "Maybe you're a professor or something. Do you suppose I've got a case of amnesia on my hands? Now where could you be from? No seven-foot professors have been reported missing lately—certainly not from the university. Maybe some small college somewhere."

Chark touched his mind lightly, and the reporter looked speculative. "You know, I think I almost believe you—only a reporter has to have better sense than that. Tel you what I'm going to do. There's something here. I'm going to write this as a feature, just the way you gave it to me. The Old Man can't object to that."

"Will you get me an audience with your scientists?" asked Chark. "Now—tonight?"

The reporter looked sympathetic but he shook his head. "You'd never get to see any of the big-shots at the natural history museum this time of night. Wait. What kind of scientists do you mean?"

"Men interested in chemistry, physics, astronomy—but especially—" he searched the young man's mind quickly—"a man versed in medicine."

"Well, the top man in physics in this part of the country is Dr. Phillips, head of the physics department at the U., and he's tough. You wouldn't get him out of the house after supper to see a tyrannosaur parade down the middle of Main Street preceded by fourteen motorcycle cops and a South Sea island drum majorette—with a flying escort of pterodactyls, since you mentioned the Jurassic Era. No, sir, old Dr. Phillips doesn't believe in anything that he hasn't seen—not even his own grandmother. Why do you want to see a physician?" he asked suddenly. "You don't look sick."

"I want information," said Chark patiently.

"Well, okay, I'll see what I can do. What do you want—a specialist or what?"

"I want information about a broken back," said Chark, "and I must have it tonight."

CHARK saw that the reporter was not over-impressed. Chark could have changed his mind, but he didn't want to be arbitrary. He wanted to convince him.

"You are in trouble," Chark said softly.

The reporter nodded absently. "Yeah. The Old Man doesn't like the way I brush my teeth. I get in his hair."

"Especially," said Chark, "since you printed the article about Professor E. M. Stanley and his new theory of two-dimensional matter."

The reporter looked up. "You read the papers, I see."

"Your friend, Professor Stanley, is an assistant in the physics department at the university and has just written for his doctor's degree a thesis putting forth the theory that space and time are the only two absolute substances in the universe."

The reporter was unimpressed. "The only thing wrong there," he said, "is that my friend is a she."

"What do you mean—'she'?" asked Chark.

The reporter's eyes widened, but Chark required him to answer. "A female, you dope. Didn't you ever hear of a female professor?"

Chark shook his head slowly, wonderingly. The world had indeed changed.

"So I guess you're not very psychic, after all." The reporter sounded disappointed.

"And this Dr. Phillips," Chark went on, groping hard in the reporter's mind for the words, "is her department head. He protested to your publisher against the publication of what he termed a 'crackpot theory' by one of his instructors."

The reporter looked at Chark. "How did you know that?"

"Dr. Phillips has received many letters of protest from all over the world, and he has complained. Also your publisher has severely reprimanded you for publishing unverified information and has ordered you to get any further such stories approved by Dr. Phillips, which, you are firmly convinced, means that you never will get another such story printed, for, in your own words, Phillips is an old battleaxe."

The reporter was staring at Chark. "Hey, wait a minute. I never said that to anybody—not even to Ellen."

"It is in your mind," said Chark, unperturbed. "Furthermore, your friend's theory is correct. The only material thing is space, and the only thing that makes space display different forms is time. Time causes frequency and different frequencies make different substances. All time is the same, and all space is propagated at the same velocity, but time folds back on itself, and the number of folds determines the frequency and therefore the final substance of space—which becomes energy or matter."

The reporter's mouth was open. "That's what I was trying to put across in my story, but I bungled it. You did it better. Who are you anyway?"

"I am Chark from the Jurassic Era."

The reporter wiped sweat from his forehead. "Damned if I couldn't almost believe you—now." He looked at the bars that Chark had twisted aside. "If you'd explain that, maybe, I could—"

Chark reached out with one hand. He grasped a half-inch bar and turned his hand slowly. With a great screech of tortured metal, the bar stretched and then broke.

The reporter swallowed hard. He looked closely at the bar. Then he shook his head. "It's a good trick. How'd you do it?"

Chark sighed. Men could be very difficult, it seemed. "Why does your friend not prove her theory with mathematics?" he asked.

"That's a good point. The truth—which I couldn't print—is that the only electronic calculator available to her is under the direction of Dr. Phillips, and he won't let her use it. This figuring would take several lifetimes to do by hand, so that's out. It could be done in five hours on the brain, but Doctor Phillips insists there isn't time for her to work on such a 'fantastic' problem." Henderson sounded sarcastic.

"It is possible," said Chark, "that I can help, if I can talk to your friend."

"Tell you what. I'll call Ellen, and I'll try to get hold of somebody to listen to your story, whatever it is. How's that?"

"Good," said Chark. "But please hurry. Tonight."

He sat back to wait. Telepathically, now that he had established connection with the young man, he was able to follow him to the Tribune Building and into the Old Man's office. The Old Man reminded Chark of Grak, for when he saw the reporter he roared at him.

"Where have you been for the last two hours?"

"Working on a story," the reporter said quietly, "about a man who claims he's from the Jurassic Era."

The Old Man's face turned purple. "If that story you wrote about Professor Stanley wasn't enough—And then I find

out today that Stanley is a woman—a *young* woman. That explains everything."

Chark was quite puzzled at that speech.

"Half an hour ago," the Old Man went on, "a leg-man came in with a story about fresh tyrannosaur tracks out in the country somewhere. A paleontologist at the U. examined them and said they seemed to be the real thing." The Old Man exploded. "They even had one of my high-priced photographers out there to take pictures. What am I running around here—a newspaper or an insane asylum? Now you come up with a man from the Mesozoic Age. Now look, Henderson. I'm a patient man, but when you and your girl-friend deliberately conspire to get my goat, it's too much. Guild or no Guild, I'll fire you if this kind of thing happens again."

Chark admired Henderson. The reporter's face was red, but he kept his tongue. Chark felt sorry for the Old Man, because he was so much like Old Grak.

HENDERSON left, and Chark, tired from the strain of projecting his mind so far, let him go and sat back to wait. He hoped it wouldn't take too long, for it was worrying him to think about the female back in the time-vault. Her back must be very painful by now. Twice had they been awakened in the last hundred million years, and each time Chark had tried desperately to find medical help, but each time he had failed. On both occasions she had been very patient and had not even whimpered, but Chark had seen the suffering in her eyes and it had been hard for him to take. This time he was determined to get help.

Perhaps it had been a mistake to try to save her, after all. Old Grak had said, when she fell out of the big moa-tree and lay writhing in the tall grass, "Let her alone. She'll die before sundown."

Chark had heard the ominous thump as she hit the ground; he had heard her first cry of pain and had seen the anguish in her eyes. A sudden inexplicable impulse to go to her had come over him, but while he was debating that strange feeling and trying to reconcile it with Grak's rule against wasting time on the unfit, Grak himself had come up behind him and reminded him of his duties.

For a few hours after the accident Chark went ahead with his work in the laboratory. All of the five or six hundred men in the Great Salt Marsh worked in the laboratory, on problems directed by Grak. The laboratory was a huge building of glass and steel and lead for shielding against hard radiation, built on the only large area of high ground in the marsh. When a man was working in it, during the daytime, he was safe, for one of the two rules that governed the Grak outfit was: no fighting in the laboratory. The other was: no help to the unfit.

So Chark tried not to think of the female. His was a problem that would take several years, for he was studying each element to determine the rate of energy flow at the instant a neutrino triggered a mesotron into the reverse field that held the nucleus together. The neutrino, of course, traveling at the compound square of the speed of light—c square squared—was indetectable, and the creation of mesotrons involved considerable apparatus and a very thorough knowledge of dimensional mechanics, so that Chark soon became absorbed in his work and forgot even to look outside until the middle of the afternoon when the steam began to rise in clouds from the marsh.

Then he remembered the female. He went to the window and saw her still in the grass. Her face was contorted but she made no sound. The baby, after which she had crawled out on a rotten limb, had been in her arms when she fell, and was unhurt. Chark saw the female's lips, dry and beginning to crack, and he felt that same feeling of sympathy that he had felt

when she dropped. It was stronger in him now because he realized it was the same feeling she had had when she went after the baby—a desire to help.

That was a strange emotion for a Grak man. In Chark's hundred or more years in the laboratory he had never seen it before. He had felt it, and he had watched for it in others, but he had not seen it, and, knowing the immutable law, he had never shown it. But now he recognized it in another, and the fact that they two had it, and that they were the only ones, seemed to require that they should stand together.

HE SHUT off the great electrostatic generator. He got a glass beaker and went to the fresh-water spring. He filled the beaker with cool water and took it to the female. She saw him, and her eyes were big, and strangely wet.

She took the beaker and drank it dry. Chark saw that she was young and strongly built. It was a pity that she had fallen. He turned back to the laboratory.

Grak was waiting for him outside the laboratory. "Is your work no longer important, that you waste time on the unfit?"

Chark studied Grak but he hardly saw him. He was turning over a great many unusual thoughts in his mind. "She needed water," he said slowly.

Grak roared. "Let her die! She's no good. She's helpless. You can't clutter up civilization with a lot of cripples."

Chark saw more Grakmen coming. Muz, the bully, and Gor, his henchman, were in the van. Chark backed to the wall.

Grak glared at him. His voice lowered. "You're showing soft emotions, Chark—emotions that I never have seen in a man, but only in a female with young."

"I wonder if that is so bad," said Chark, watching the semicircle fill up around him. "Is there to be nothing for Man but hunger, mating, fear, and the incessant quest for knowledge?"

"Mental achievement," said Old Grak, talking now like a man to an inferior, "is the only worth-while thing. There is no place in civilization for the soft emotions."

Chark answered steadily, "The so-called 'soft' emotions are all that distinguish us from the dinosaurs."

Grak snarled. "The mind is the distinguishing feature."

"Even the dinosaur has a brain," Chark pointed out. "Some have two brains."

Grak snorted. "You think a brontosaur could figure out atomic fission?"

"Not a brontosaur, no. But take Lagh. Give him a hundred million years to develop. Or take Sala, the pterodactyl. Either one of them can evolve to where Man is now. I say that Man must keep on evolving, and that sentiment is the next step."

GRAK exploded at that. "Our methods are harsh but they are just," he roared. "We have kept the racial stock at a high level."

"True. Not more than one out of ten men survives to maturity because no one will help an unfortunate. That is why there are only scattered small groups of men over the world today—less than six hundred thousand on Earth."

"And you think we need more?"

Chark hesitated. "No, perhaps not. But we owe something to those whom we create, and they too may have much to contribute to Man." He paused, and then went on with renewed vigor, looking squarely into the impassive brown faces around him. "Is Man always to live in fear?" asked Chark. "Should he not expect help when he needs it rather than sharp teeth in his neck when he isn't looking?"

He glared at them, fifty men of the Great Salt Marsh. Their cold eyes showed no understanding. "I am backed against a wall because I do not trust anyone." He smiled grimly. "No one attacks me from

the front because no one dares. If any one of you felt himself my equal, he would try to kill me." He snorted. "We call ourselves civilized, but we do not care for our young. The female lying there in the sun is the only one I have ever seen who was concerned enough for her young to risk her own body. We cannot even live in herds like the diplodoci. We meet, we work in the laboratory, and we separate. Each one hides away for the night. We are not civilized. Mentality has no bearing on civilization. We are savages!"

It was the supreme insult, to say that to Old Grak, the physicist. Grak's wrinkled face turned pale, his great chest filled and expanded. His eyes were like knife-blades, and Chark waited for the rush that would bring them all on him. But Grak looked at Chark's great shoulders, and changed his mind. They were well developed, these men of the Salt Marsh, but Chark was stronger and quicker than any of them. So they were cautious.

Grak scowled and went back to his work, and again Chark, waiting with his back to the wall until the last man should leave, felt that strange emotion. He felt sorry now for Old Grak, who was a hundred years past the prime of his life and no longer able to avenge an insult.

Chark went back to the generator. He was a little ashamed, too. He was the one who had made old Grak back down—and he was stronger and younger. It wasn't right.

Old Grak had the finest brain of the Jurassic Era. He had marked many milestones in physics. Grak's theory of inverse atomic structure to explain the incongruities in atomic physics had superseded the old shell theory of electrons; Grak had been the first to explain why a magnetic field would attract or repel; Grak was the one who had advanced and proved the theory that there were only two basics in creation: space and time, and that all matter and all energy were products of those two in varied forms.

Yes, Grak had a fine brain, but no trust in men and no trustworthiness—nothing that tended to make life comfortable. Chark wondered if perhaps comfort was not to be desired as much as knowledge.

There was tension in the laboratory. Chark knew that Grak was watching for an opportunity to kill. Chark didn't mind that, but he did mind the looks that began to come from the others. He spent the rest of the day in constant alertness. Someone here would soon be killed.

He was cautious, and his great strength made the others cautious and kept them at a distance. But by evening he had come to a decision. As soon as it was dark he took some fresh clams to the female under the moa-tree. Then he went to the warehouse and gathered supplies. He carried them to the mountain, and such was his strength and speed that within a few hours he had an enormous quantity of material.

He spent the rest of the night digging a cave in the solid granite with explosives. The mountain was carefully chosen. He lined the cave with lead and installed a thorium-activated relay. He gathered herbs to induce catalepsy, and just before dawn he connected a temperature-regulator with the radiation from the relay. Then he set the relay to open the vault at whatever time in the future it might detect enough hard radiation to indicate that man had begun to use atomic fission in quantities.

As the sun came up over the marsh, and steam began to rise in place of fog, Chark surveyed his night's work and found it good. Then he went back to the laboratory. He faced Grak and announced:

"I am leaving, Grak. I have prepared a time-vault and am going into the long sleep. I am taking the female and her young with me, since that is the only way I can save them. We shall go into a future civilization and rebuild the race,

teaching and instilling into it the sentiments that we have and that you do not recognize."

Triumph glowed suddenly in Grak's opaque eyes. "You are a coward," he said. "You are afraid and you are running from me."

Chark stiffened. "Old man," he said, "keep your tongue." He looked at the waiting faces behind Grak. "I am afraid of no man and no combination of men, but if I stay, I shall have to kill some of you, and that is waste. I do not belong in this era, because I do not believe in killing. Therefore I am leaving."

He backed away. At the door he turned. He heard Grak's growl and turned in time to meet the old man's rush, the great yellow fangs seeking his jugular vein.

Grak was no match for Chark. Chark met him, parried him once, twice, and when he saw the ring of men closing in he killed Grak. They would have overwhelmed him by sheer weight if he had not, so he bit Grak's neck cleanly in two and tossed the body away, showing his independence by refusing even to eat it.

That also was taken as a sign of weakness by Muz, the bully, and Gor. The two rushed Chark, one from each side. There was a moment of whirling legs and arms, flashing brown bodies. There were cracking bones, and then the two bodies, of Muz and Gor, followed Grak's carcass through the air, both with their necks bitten through.

Then Chark was gone. He stopped to snatch up the female and her young and carry them to the vault. He sent out mental commands for Lagh and Sala, for they were known to be his friends. Worse, they had in the past responded to Chark's friendliness with some show of "soft" emotions on their own part. Their lives now would be worth little around the marsh.

In an hour the great dinosaur and the big pterodactyl came up the mountain. Chark took them into the vault. He made the female comfortable in a bed of moss, and set about sealing the vault against the weather and against time. Once it was sealed, the Grakmen would waste no more time on him. They would be busy protecting themselves from one another. And with luck the vault would last a long time, for it was not located near a geological fault. . . .

## CHAPTER THREE

### Quest of the Caves

IN LESS than a thousand years the vault had opened. The descendants of the Grakmen had started fighting each other with atomic explosives.

Chark by that time was faced with a new problem. The female was in pain. She did not whimper, but anguish showed on her face when she tried to move. If she was to live, she should be relieved. But that was beyond Chark's knowledge. With all his mentality, Chark had no knowledge of anatomy and was helpless. He set out to find a man who might have that knowledge, but was unsuccessful. He barely got back to the vault with Lagh and Sala, and water and mollusks for the female and her young, before the marsh was devastated by a lithium bomb.

It was a predicament to which there seemed but one answer. They must go back to sleep. That would arrest the pain and any other trouble that might develop in the female's back, and probably the next time they were awakened, Man would have some knowledge of his own body....

The second period of sleep was a long one. On awakening, Chark looked twice when the graph on his relay showed nearly a hundred million years. He opened the vault and went out hopefully. Surely in such a very long time Man must have developed the knowledge he needed.

But he was disappointed. Man was still primitive; socially he was a little ad-

vanced, because he lived in groups, but mentally he had lost ground. His language was crude. He still lived in caves. He took care of his females and his young, but not of weaklings. He still had not studied the human body—but he had studied the atom. He was experimenting with fission. Astonishing, thought Chark, how that one thing—the secret of matter and energy—was a perpetual challenge to Man.

In this caveman culture, Man had learned fission empirically. He didn't know how it happened and didn't think about it. He only knew that he could produce energy from matter. Perhaps his knowledge came from incredibly ancient legends handed down from the Jurassic Era. At any rate, Man was playing with cosmic fire. It burned him. The known world and its few centers of society again were destroyed, and the few not killed by the blasts or the subsequent radiation fled into the forests and the mountains to start new lines of the species.

Once again Chark retreated into the vault with his companions, sorely troubled because each time the vault opened for a few days the female's pain grew worse. Chark was afraid that one more time would be the last unless he could get help. Wouldn't Man ever turn from destruction to helping Man?

The next time he was awakened, the slow-motion graph on his relay showed it was only twenty thousand years later. Now it was an even hundred million years from the time of Grak.

This time the female did not awaken at once. So Chark got Lagh and Sala and they set out together. It was when he saw the artificial buildings that he was encouraged. If Man had developed enough to live in communities, he must have developed also a knowledge of treating injuries.

And so a few hours later, Chark, finding himself in a strange world with strange ideas and customs, and not wanting to offend, allowed them to imprison him. But now, waiting for their scientists, he was beginning to get impatient. He hoped Henderson (what a long name!) would hurry and bring the physician as he had promised.

After an hour Henderson was back. "I've brought my friend, Miss Stanley," he told Chark. "Maybe you'd better pull the blankets around you."

Chark complied. Then Henderson disappeared. Chark felt feminine emanations. Henderson came back, opening the door for the female, who came through first. Chark stared. She too was clothed, but at once he liked her calm and her kindness and her logic. A quick glimpse into her mind astonished him. She was much better versed in science than Henderson. But best of all, Chark liked the warmness of her radiations and the glowing aura that they caused in Henderson's mind. Chark paused in wonderment. This was something like the feeling he had for the female back in the vault; but this was more highly developed.

SHE PUT her arm through the bars, and Chark made a quick search of her mind to find that she expected him to shake hands. "So you're from the Jurassic Era," she said, and there was no skepticism in her voice. She turned to Henderson and said, "I like him."

Henderson said, "I do too."

*Like,* she had said. That was an odd concept. There was no equivalent word in Chark's vocabulary, but he knew it was akin to the feeling she and Henderson had for each other. Now Chark himself felt warm and glowy, and he positively squirmed when she smiled at him. Then he remembered his own female. "Can you get a physician?" he asked.

"I'd like to ask some questions first," she said. "What do you know about my two-substance theory?"

Chark said, "Old Grak evolved that theory, a hundred million years ago. I am familiar with his postulates."

She looked at him thoughtfully, and Chark saw that she was trying to believe in him. He said, "Why not do it this way. Let g sub a equal the gravitational constant for the nucleus of the atom." He was searching her mind for her own symbols. "Now, take your Rydberg wave number." He went on, not working the problems, but explaining them to her in her own terms, and substituting symbols for the answers to the equations.

She listened raptly, but finally she interrupted. "I can't follow you there." She had been making written notes, but now she looked up. "You are speaking of n-dimensional continua as if they were physically real. Our science isn't ready for that."

He searched her mind for an instant. Then he said, "Your two-substance universe has come too soon. What you need as a foundation is dimensional mechanics. It would be the next logical step after your present wave mechanics. How long have you had wave mechanics?"

"Since about nineteen twenty-five," she said. "Fifty years."

"Then you're ready," he told her. "And it's simple enough—an extension of the quantum theory. There isn't really much difference between quantum mechanics and wave mechanics, when you know the basic principles. A dimension consists of electromagnetic energy folded back on itself in fantastic shapes, and other dimensions are merely complications or consolidations. Keep your pencil ready and I will give you some formulae. Grak had worked out the system to the twenty-fifth dimension before I killed him."

She stared an instant, but he started talking and she started writing. Presently he said, "There it is. Using the dimensional formulae as a base, you can prove your substance postulate."

"But these equations! It would take five hundred years to work them out. In half an hour you've laid out enough math to keep a dozen men busy for a lifetime. If I had access to an electronic calculator—"

Chark said, "Let Dr. Phillips do it for you."

"Oh, that's impossible. He won't even let me use the brain."

"Don't worry," Chark assured her. "Describe the steps of the problem as I have described them to you, advance your dimensional mechanics ideas, and give the mathematical answer that I have given you—and he will do the rest."

"He's right," said Henderson gleefully. "The doc will have to work it out in self-defense. He won't know how *you* did it, but he'll sneak it through the 'brain' to see if you're right."

Her eyes were glowing. "How can I ever thank you?"

"You can get me an audience with a physician," said Chark.

"You wanted to talk to scientists, too," she said softly. "Well, I'll get them for you. I'll get them tonight." She turned to Henderson. "Jim," she said, "I do believe he came from the Jurassic Era."

Chark was pleased.

He was even more pleased when, an hour later, the sheriff came for him. "I don't know how she did it," the sheriff said. "Here it is eleven o'clock at night and you're going up to the museum for a conference. I didn't think you could get the museum open this time of night with an atomic bomb." He led Chark outside. "Better wrap that blanket around you."

Fifteen minutes later they walked into a high-ceilinged room in the Paleontology Section of the museum.

THERE were Henderson and Miss Stanley, and Henderson introduced the others: Dr. Phillips, head of the physics department at the University's

School of Technology; Mr. Jameson, in charge of paleontology at the museum; Mr. Swinburne, who occupied a chair in anthropology at the University; and Dr. Radke, an instructor in the medical college. Chark had to search Henderson's mind fast to understand these terms, but when he did he knew that Henderson and Miss Stanley had done well; they had brought him their topmost scientists. Chark was impatient to search the physician's mind, but he must be polite and answer their questions on physics and mechanics first.

Dr. Phillips looked at Chark, and the sourness of his face reminded Chark very much of old Grak.

Miss Stanley said confidently, "He's from the Jurassic Era, doctor."

Phillips snorted. "Nonsense. He just needs a haircut."

"Ask him about wave mechanics," Miss Stanley suggested.

Phillips gave her a terrible scowl. "Miss Stanley, I came here because you promised proof of your fantastic theory on substances, and frankly, I came more to give you a chance to expose yourself than for anything else. I'll say more. If this turns out to be a fiasco, as it is bound to, I shall use my influence in the graduate school to see that your petition for a doctor's degree is tabled."

Miss Stanley turned white, and Chark felt sorry for her. But he kept quiet and waited.

Doctor Radke, a medium-sized man, very calm and capable-looking, approached Chark, and at that moment a door opened and another female entered with a notebook. She stood behind Radke. Very convenient, thought Chark. In this modern civilization a man even had someone else to remember for him.

Radke looked up at Chark. "Height, about seven-one," he said, and the female made queer marks in her notebook. "Weight I'd put at two-forty. Brownish skin. No distinguishing scars or deformities. No abnormalities. Quite the reverse, in fact. A magnificent specimen of homo sapiens." He looked at Chark thoughtfully. "Or *is* he homo sapiens?"

Chark didn't pay much attention to him, for he was busy searching the physician's mind and finding out all he needed to know about anatomy and especially about a broken back. It was encouraging. He thought now that he knew what was wrong. Two of the vertebrae, at a bad angle, were pinching the spinal cord and causing paralysis of the lower body. He had principally to straighten out the bend, and the female would recover.

"Miss Lasky, will you take Mr. Swinburne's notes as he goes?"

Swinburne, a tall man with penetrating eyes and a husky, drawling voice, said, "That's quite a brain-case, wouldn't you say, doctor? It would appear to have a capacity of twenty-eight or twenty-nine hundred cubic centimeters, I would say."

Radke looked up. "I thought you'd notice that. I hesitated to say. Isn't the largest brain on record something like twenty-two hundred C. C.'s?"

Swinburne nodded. "Yes—and still I'd swear this one will go close to three thousand."

"You should know. You've been looking at brain-cases all your life." Radke chuckled slightly.

"The odd part is," said Swinburne thoughtfully, "the head-shape is definitely dolichocephalic, which you hardly expect to find under the circumstances. And there's a puzzler: the brain-case and the absence of jutting eyebrows eliminates this man from any prehistoric species of our knowledge, but the skull is brachyfacial—like a Cro-Magnard. Handsome beast, all right. Observe that heavy lower jaw. That isn't compatible with any of our fossils." Swinburne was truly puzzled. "Neanderthal man, for instance, didn't have any chin at all." He went on. "Note

that very high forehead. It looks as if Nature has played one of her best tricks in this man. How can you reconcile his physique with that enormous brain?"

## CHAPTER FOUR

### Tomb of Time

JAMESON said, "I believe you claim a familiarity with the Jurassic Era. Do you mind if I ask a few questions?

"Not at all," said Chark.

"Where's your home?"

"In the Great Salt Marsh."

"Where did you vote?"

"Vote?" asked Chark.

"Sure. When you elected the head man."

Chark bared his strong white teeth. "We elected the head man with these."

Jameson blinked. Then he said, "How did you get here from the Jurassic?"

"In a time-vault," said Chark.

"Where is it?"

"Up on the mountain."

"Isn't it destroyed now?"

"No."

"Think you can find it?"

"I know I can," said Chark.

"That was the age of reptiles. I suppose you know all about dinosaurs of various descriptions."

"I am familiar with many species."

"You didn't happen to bring any fossils with you?"

"I did better than that," said Chark. "I brought a tyrannosaur—alive."

Now Jameson smiled. Chark saw that he did not believe. Jameson said, "We have very few fossil remains that give us any information about that era, but we have here at the museum a man who has devoted his life to a study of them. Perhaps you can verify his findings. Can you tell me what you had in the Jurassic? Just a few items, let's say. Start with the crinoids. Maybe we can find a common ground here."

"Do you mind," Chark asked apologetically, "if I search your mind to put it in your own words?"

Jameson smiled. "Not at all."

Chark said, slowly and carefully, "We had a small crinoid echinoderm which you call pentacrinus. Then we had pelecypods which you know as gryphea and trigonia, a cone-shaped gastropod—pleurotomaria, you call it. I might add that we had quite a representation of trilobites, which you may not have discovered. They—"

But Jameson was staring at him. "Wickert did not announce that until yesterday," he said slowly. "It is the first time that anyone ever has found trilobites as late as the Jurassic. How did you know that?"

Chark smiled. "I was there," he said simply.

Jameson looked at Phillips and shook his head wonderingly. "I check," he said.

The fat-stomached sheriff said, "See how strong he is."

Radke looked thoughtful. "We haven't any weights."

Jameson said, "Here's a broom. A couple of you take hold and see how easily he can twist it out of your hands. I have a hunch—"

Chark lifted it out of Radke's hands as if he was lifting a feather.

Then they all took hold—everybody but Phillips and Miss Stanley. Chark took hold of the round piece in the middle and with no effort twisted a piece a foot long out of the middle of it.

There was silence.

"How high can you jump?" asked Radke.

Chark looked at the ceiling. It was about three times his height. He crouched and sprang, holding the blanket with one hand. He thumped the ceiling and dropped back softly.

Radke's eyes were bulging. "Broth-

*errr*!" he said. "Whatever it is, I'm in on it. You can talk about abnormalities all you want to, but this isn't abnormal. This is a superman!"

He began to put away his tape-measure. "We're wasting time here. Tomorrow I'll have him out at the clinic."

Phillips growled. "How could a man from the Jurassic Era know anything about atomic fission?"

"Are we so superior?" asked Jameson softly. "You read the story about the Euphrates. Archaeologists dug up a layer from an agrarian culture eight thousand years old, then a deeper one of a herdsman culture, still another of a cave culture, and finally a layer of fused green glass, just like what was left on the desert by the first atom bomb in New Mexico."

Phillips motioned to the others, and they all went off in a corner to talk.

Chark thought he heard shouting down the street. But Phillips' voice rose in the room. "I tell you it's quite impossible. I don't know where he's from, but certainly not from the Mesozoic."

The shouting now seemed to be in the street under the museum. It grew in volume. Weren't these noisy humans ever quiet?

The sheriff was at a window. He looked, and Chark felt amazement flood the man's mind. "Hey, professor!" His eyes were distended. "They've got the biggest animal in the world down there!"

JAMESON jumped to a window. He took one look and shouted, "It's a *tyrannosaur*!"

"You're crazy," Phillips growled. He turned to the window. He looked and then turned around and quietly slumped to the floor with his hands crossed on his chest.

Chark had been so busy watching the antics of the professor that he had not realized what they were saying. Now it struck him. He made the window in one great leap and looked down.

Crawling along the street was one of the machines with a huge flat top. On its top was the mangled, bloody body of Lagh, with his oversize head twisted under him at a gruesome angle.

A man standing beside the body saw the sheriff in the window and shouted, "It was stealin' a hog out of Gleason's farmyard! The boys got him with a bazooka!"

Chark felt a great pang of grief. Lagh was dead. And it hurt Chark because he was responsible. If he had returned in time, Lagh wouldn't have been killed.

Chark stood straight and tall, hard and strong. He started to leave.

"Hey, wait a minute," said the sheriff.

Chark did not stop, but as he approached the door the sheriff pulled a small object from his clothing somewhere and pointed it at him. Chark sucked in a deep breath and hardened his muscles at the spot on his stomach where the sheriff was aiming. The small object made a loud noise and a flash.

Chark felt something hit him. It struck with great force and even the mighty Chark, stopping it abruptly, was pushed back almost off-balance. The thing that hit him, a small piece of very hot lead, shaped like the end of a man's thumb according to the way Chark saw it before it hit, flattened itself against the steel-hard spot on his stomach and dropped to the floor with a small thud.

The sheriff's eyes opened ludicrously wider. His hand, holding the weapon, went limp.

"Say," said the sheriff. "What's going on here?"

Chark looked at him and a little wave of mirth—or the nearest thing to mirth that Chark knew anything about—came in his mind. He fixed his eyes on the little sheriff and said, "Go."

The sheriff turned and marched out.

At that instant Henderson seemed to come alive. He snatched his hat and

snapped at Miss Stanley, "Tyrannosaur. Got to get a picture. Got to write a story about Chark here."

Chark remembered then he had a duty. He went into Phillips' mind and made sure that the professor would approve Miss Stanley's application for a degree, whatever that was. It would save Miss Stanley trouble and it would save embarrassment for the professor.

Then Chark went out after the sheriff.

They didn't get very far before a crowd gathered around them. Chark was controlling the sheriff, hoping to get away peacefully, but he heard a nasal voice, "That's the feller that was in my henhouse last night!"

Chark looked around. He felt the threatening emotions in the white faces turned on him. There were too many for him to use hypnosis. He decided to run.

It would have been difficult for any man to follow him, for he covered the first hundred yards in something like three seconds.

He went through town at that speed, and then he set out in a long, fast lope that brought him to the tree where Sala, the pterodactyl, had been.

Sala was there. Her mind was still filled with fright, for she had been close enough to feel Lagh's death-agonies. She fluttered clumsily to the ground, and when Chark touched her she was trembling.

Chark soothed her, then he set out for the mountain. . . .

IT WAS early morning when at last he sat down to rest in the doorway of the time-vault. He had spent some time making the female comfortable, and now he knew that she would get well and it made him feel pleased. She was sleeping now, for he had given her the herb-tea. He sat there, watching the sky, his nostrils testing every gust of wind.

He noticed the black clouds then. There would be a storm.

Then he saw something unexpected. Half a dozen of the moving machines were coming toward the mountain.

The first few drops of rain came in a swirl of wind. The clouds rolled over the mountain and it was dark. The lightning began to indicate a leveling of potentials, and thunder crashed among the rocks. A fitting scene for an exit, thought Chark, trying to follow the men down below.

He caught the perturbations in Sala's mind and looked up. She was flying above him in short, excited bursts. All of Chark's eleven senses were taut. His keen eyes penetrated the blackness.

He knew when they broke out into the clearing a hundred yards below. He heard them yelling when they saw Sala, and heard a shot. He gave Sala a sharp command. She swooped down and into the mouth of the vault. Reluctantly he got up and went inside.

He closed the door and sealed it. He set off the tiny explosion that would shower down rocks to hide the door. In the utter darkness he set the opening mechanism. He stretched out on the moss by the side of the female and prepared to sleep.

He had found medical help in 1954, but sympathy and understanding were sketchy. Man still retained a good deal of the savage. It wasn't the right period for Chark and the female to try to build a new civilization.

How long, he wondered, would they sleep this time? Would it be again for a hundred million years? And in that time would Man change as little as he had since the Jurassic?

Sala was settling down in her nest. Her great leathery wings were folded in around her. Chark sent her a thought of assurance. The female was sleeping soundly beside him. Chark was glad. He relaxed. Perhaps the next time the vault opened, it would be to a world where they all could live in peace.

WE DISCOVER, with a sharp sense of pleasure, that you people actually *like* this department. It rates first among SUPER's features, as you'll see by the listings overleaf. Fortified by this knowledge, we don our Editor's Mask, Model U2 (half scowl, half leer, eyes bloodshot), renew the special vitriol lead in our pencil, and plunge into a sea of nonprofessional, typed-scrawled-or-lettered, misspelled, rambling outpourings of opinion. For the editorial mind, it's a curious and unsettling experience—no plots, little or no sense of form, nothing but genuine interest and willingness to help. Perhaps that's the reason we spend twice as much time over M & M as we can spare for any similar task in our well-plotted, pre-formed routine. We complain, of course; but confidentially, we love it.

Editor, Missives and Missiles

Dear Ed,

Congratulations, et cetera ad infinitum. Such an issue as rolled off your presses the last time! The cover was sane, sensible and easy to look upon. The stories were, as the name of your magazine infers, super!

Now to Missives and Missiles. Honestly, I used to be able to read the stories first and then, for lack of anything better to do, read the letter column. Too late, I find that I am becoming a fan (horrible thought isn't it?) and must find out the thoughts of other fans before I can enjoy the stories.

I thought that we had Larry Shaw all pegged out for the kill and now he turns a complete about-face and ruins the pleasure of giving him the final blow. I'd rather not have my letter printed in a "Why Everybody Loves Larry Shaw" department, but I do wish that I could turn out such satirical, tongue-in-cheek prose as he did in the last issue.

It's nice to know that I was of such tremendous aid in causing him to see the light, on paper at least! Such a guy, I'd like to meet him sometime.

I, too, have changed my mind just a wee bit. My humble apologies go to Larry and Shelby Vick. As Shelby so kindly pointed out to me in the last issue, the substitute for space travel via rocket is the matter transmitter. In writing my former letters I completely forgot about teleportation. The idea is good, perfect, I agree. With its use the galaxies won't be nearly so cluttered up with all those nasty old spaceships and rockets. Let us hope that no wires get crossed in the transmitter so that our hero finds himself in some queer land where the buxom lassie ain't. The lassie will be trapped in the foul cave of some BEM (by the way, I agree that BEM's should go. The mean old things) while our brave laddie is playing tag with the unborn queen in shadow land.

Seriously, I did read a very good story not so long ago that gave a very vivid description of a man's feelings as he was transmitted, atom by atom, to another planet. It hurt him too, Shelby! If you think it's painless just let someone tear your atoms apart and stick them back together again. Thanks, you can have it.

Now, Larry, Shelby & Co. since we have eliminated spaceships from the galaxy, we can start project No. 2 to eliminate those horrible, inhuman weapons—ray-guns, disguns and atomic weapons. I'm sure they don't hurt half as much as a teleport.

If there is anyone near here who is interested in a club, discussions, arguments and/or the writing of science fiction I'd like to have them contact me. I miss those verbal arguments that I used to have before I came out west.

Thanks for listening.

Clark E. Crouch
324 Sanford Ave.
Richland, Wash.

Dear Editor, you *nice nice* BEM:

Oh goody! You *printed* my letter. (Looks more like it was mimeographed, but I guess you printed it, all right. Although you didn't print it all right.) Well, see if you can stick this in somewhere next to the "Why Everybody Loves Larry Shaw" Department.

I would say that Larry Shaw had the best letter again, except that Chad Oliver had the best one. (Why, you ask, do I not start on the stories? Because, I reply—I place MISSIVES AND MISSILES at the top of this month's judgment list.)

Somehow I managed to read all of the stories. (Is the reason you were about three weeks late the fact that FN was using your presses last issue? It looked like it.) Who is Neil R. Jones? The name is new to me. I repeat: the *name* is new. As a matter of fact, so is the style: I like it, and want more adventures of the machine men. It seems to be a unique handling of rather an ancient concept; but that sentence can apply to nearly every story in the issue. Suffice it to say that THE METAL MOON is one of the—no, *the*—best story SSS has published since the rejuvenation (before that—I wouldn't know). And Neil R. Jones, in my opinion, is one of the most promising authors since Charles F. (I think "F.") (No, it's "L.", isn't it?); as I was saying, since Charles L. Harness and the Raymond F. of the same surname. I hope he does more than "promise". . . .

Bradbury, both in "Marionette Inc." form and usual form, was absent, but I didn't miss him after reading Bryce Walton's WORLD OF NO RETURN. Nothing new in the story. . . . But the theme will never again be written to match this try. . . .

MINION OF CHAOS was something like the same author's THE HUNTED. But not as good. Perhaps because the theme, as he used it, should have resulted in but a short story. Really though, none of the three long stories were "novels". A story, or so I read, is classed as a "novelette" even when it contains 70,000 words. What say you to that, ed, eh? What say you? (We say nuts—Ed.)

Then comes Smith's effort, which seemed rather quickly-written. That is, I wasn't at all satisfied with the ending. It should have been drawn out ten or twelve pages more. Before I knew it I was halfway through STAR-BROTHER.

Speaking of which. . . . Mullen seems to be turning out quite well as a stf author. Keep him going on shorts for a while longer, then try him on a novelette—or, as you prefer to call it, a "novel".

Ere returning to M&M, a peek at ye cover. . . GAAAAAAAA! Dear Editor: poor Paul is resting quietly, now, so I can finish this missive for him (or is it a missile?). We found him lying stretched out on the floor, murmuring over and over, "Looks-like Bergey looks like Bergey looks like Bergey-looks-like—" We have given him a sedative now, so he isn't delirious. (That mouthful of handkerchief may have helped, too.)

Both of us thought the September ish was better than preceding ones, and hope the trend continues. Neither of us have decided whether to like or dislike SSS, but anyway, it's been a lot of fun deciding!

Sincerely,
Lee Gann
c/o W. Paul Ganley
119 Ward Rd.
North Tonawanda, N.Y.

P.S.: I wonder what made Paul break down? He was mentioning something about a cover. I wonder. . . . Wait, I'll look.

AAAAIIIIIII!

Dear Editor: Both Paul and Lee are resting quietly. thought I'd let you know. But, I wonder what could have caused their breakdowns. . . . Ah, the cover! That must be it! Let me see. . . .

Humph. Nothing there. Just a man and girl, both in spacesuits! And—ah, that's it. Spacesuits! The girl—hahahahahaha—is wearing a *spacesuit*; gad what are stf. mags coming to. A spacesuit.

Ha ha ha ha he he he ho ho ho ho huh! Gulp (kaff-kaff) (coke) (gurgle)

Goodbye,
THE PSYCHIATRIST

Dear Editor,

It seems that I am forced to maintain a standing feud with the Editors of all the S-F magazines being published nowadays concerning the cover material.

I read the magazine and looked at the cover. (Your first mistake.—Ed.) Then I read the stories again and looked at the cover. Nowhere in any of the stories, with the possible exception of "World of No Return" is there a similar scene. First of all, if that is the cover story, neither of the two main characters wore air bubbles. Secondly,

## OPINION TALLY

### September, 1949

| | | |
|---|---|---|
| 1. | Minion of Chaos..... | 2.8 |
| 2. | The Metal Moon..... | 3.6 |
| 3. | World of No Return..... | 4.1 |
| | Minus Danger!..... | 4.1 |
| 4. | The Miniature ..... | 5. |
| 5. | Bride of Eternity..... | 5.3 |
| 6. | Star-Brother ..... | 5.4 |
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| 9. | Fandom's Corner..... | 7.9 |

the girl did not fire a gun of any sort at her pursuers. Where then did the cover come from? (Please state your age. The reply will be sent you in a plain wrapper.—Ed.)

It has been a long time since I read any of Jones' "Prof. Jameson and the Zoromes" stories. If I remember correctly, and it is quite possible that I don't, the first one appeared in the original Amazing Stories back in the late 1920's. I enjoyed that one and this one, and I'm hoping there are more.

I'm afraid that I'm going to insult you now. I have been reading S-F for 25 years now and I must dispute your heading on the top of the title page. Your magazine is good, but it is not the best. You have quite far to go before you catch up with one of your competitors, and I think the reason is atmosphere, primarily. (If you're talking about the one that's published in Jersey, the atmosphere over there is terrible.—Ed.)

To my mind, this competitor of yours is the only magazine which is unafraid to admit that sociological development is as good a science-fiction device as a new version of atomic energy.

I do not think the primary purpose of S-F is the development of an invention which startles this world or some other. I like this type of story because I can't help liking any science-fiction at all. I like best, however, those stories which take a new invention, without developing it, and then show just what happens to a society when that invention is dropped into its lap.

Thank you for bearing with me this far. I have written a lot and have quite possibly said little, but I enjoyed it.

Sincerely,

Larry Rothstein
308 W. Clinton St.
Elmira, N.Y.

P. S. Please remember me to "Preacher" Pohl, and thank him for his pertinent book reviews.

Dear Editor:

In the ten years in which I have been reading all the SF magazines in the field, I have yet to see a letter from a Georgia fan (we 'uns down here can, too, write) in any of the readers' departments. What a *revoltin'* situation this is. I have sat idly by for too long; the honor of fair Georgia is at stake. I see that the usual procedure in these letters is to assign a rating to the stories so rather than run the risk of having one of your readers accuse us of being "backwards" down here, I'll string along.

1. "The Science Fictioneer"—a very necessary part of any SF publication.

2. "Missives and Missles"—I don't know whether it is just your selections or the general intelligence of your fans, but the letters printed in your readers' department aren't mere gibberish like those of some of your competitors. The best letter, naturally, was Shaw's (Larry, that is), Bill Searles and Ed Cox nothwithstanding. I think they're just jealous, anyway.

3. "Minion of Chaos"—excellent! About the only story in this issue worth throwing away 25c on. MacDonald is fast becoming one of my favorite authors.

4. "The Metal Moon"—Not bad; the old boy was certainly optimistic, though. He must have realized that (a) there was a possibility that his theory of "organic non-decay" in space was wrong; (b) the odds against his insignificant "casket" ever being found in the vastness of space are fantastic; and (c) even if he should be found there is no basis for supposing that whatever ("whoever" seems inappropriate somehow) did find him could bring him back to life. (What a complicated sentence! It didn't sound that way before I wrote it down.)

5. "Minus Danger"—Good story, but Smith's explanation of the black megasphere confused me. (a) Since it obviously wasn't affected by gravity, what was its motive power?—it not only moved but changed direction. (b) Smith says that the sphere would grow larger in a rarefied medium and smaller in dense matter. Well, why didn't it just get smaller and smaller during its first "die-true" course through the earth when it was small to begin with? (c) Since it wouldn't be attracted by the sun, it would be quite a feat of mental gymnastics to plot a course for the thing and (d) if the sphere ate a neat hole through a mountain, why didn't it eat off the nose of the rocket ship (or the conical framework as per the illustration) which was supposed to push it into the sun?

6. "The Miniature"—The climax was much better than the story to which it was rather loosely attached.

7. "World of No Return"—Wonderful idea for a story but very poorly written. If the "robots" had killed every Earthman who came their way, and especially since they used some of them for guinea pigs, surely the word must have gotten around that those weird critters, the Earthmen, were mere flesh and blood. Bryce Walton is a newcomer; (to me, anyway); he can't afford to make such mistakes. (See Sept. SSS, p. 65, par. 5-9—Ed.)

8. "Star-Brother"—There were no obvious fallacies but the story left me cold—one of the least original I have read in many a year. Mullen is slipping.

9. "Bride of Eternity"—Such pathos! Such sentiment! Such *CORN!*

10. Why in the name of Belial don't you use someone besides Lawrence for your covers? I could not (Gad! this letter is becoming interminable) find the story which it was supposed to have illustrated and the painting was lousy anyway. Spacewomen in long red flannels and bathing caps yet! Lawrence should go back to FN and FFM.

11. "Fandom's Corner"—The only reason this came last is because I am too far away to take any active part in any of the fanzines listed. Since all the SF magazines disappear as soon as they hit the stands, I must conclude that either some fiend is buy-

ing them all to destroy them, or there are some fans down here in the Deep South. Why don't some of you-all make yourselves known? We could start a fanzine or at least a fan club, even a pen club if necessary.

Don't take all these criticisms too hard, though, Dear Editor. (Is your name unprintable? I couldn't find it anywhere). I guess this is just one of your off months, as most of the issues have been very satisfactory.

Thank y'all!

James K. Thomas III
206 McFarland Ave.
Rossville, Ga.

## Curiosa Dept.:

Dear Ed:

I have a complaint to make! To explain: I am an amateur chemist. I read "The Brain Beast". Just for fun, I attempted Mr. Andrew Crosse's amazing little experiment. You know what?—*It didn't work.* Result:

One ruptured retort—pyrex glass too!
Acari—Bah!

Yours for a better SSS,
F. V. Scalzi
224 Greenwich St.
Reading, Pa.

Dear Sir:

I performed the experiment, described in the enclosed paper, several times before several witnesses, we seemed to get the results outlined in my notes.

Would you please check and let me know if my results are correct?

Thank you.

Mr. Ed Stafford
106 W. Green St.
Bensenville, Ill.

September 6, 1949

NOTES

It is accepted that matter is composed of atoms. These atoms are built up of nuclei with electrons revolving around them.

Some elements are affected by magnetism others are not. Some are affected to a greater degree than others.

Magnetism is believed to be an effect caused by the revolving electrons in materials that show magnetism. The elements that are not magnetic also have electrons revolving about their nuclia. *WHY—is there no field of magnetism created by these elements?*

1. POSTULATE

A logical reason some elements are magnetic and others are not, is, in those elements that are magnetic have their electrons revolving, all in one plane while those elements that are not magnetic have their electrons revolving in many different planes.

In order to produce magnetism with electricity we arrange a conductor in a loop and pass a current through it. The electrons passing through the loop of the conductor travel in a circular path in one plane similar to the path taken by the electrons in an atom of magnetic material.

Now if the loops of wire were arranged not in one plane but in many different planes a magnet would not be produced but a artificial field revolving in many different planes) A Gravity field

In order to test this belief I performed an experiment.

Taking 150 ft. of bell wire I wrapped it in loops so that every loop would interfere with the field of the loop before it. I connected the ends to 2 6 volt and 2 1-3/10 volt batteries in series. When the current had been applied about 1½ minutes a scale which the ball of wire was resting on showed a downward variation of about 1/200 of a *gram,* indicating a field of some type had been produced. Heating of the circuit caused a drop in amperes. After allowing the coils to cool I tried again getting the same effect. The coils seemed to have no effect on a small compass held close to them. There was no apparent change in the scale reading when I held a 3-lb. piece of mild steel above or below the coils.

I did this experiment 5 times with approx. the same results each time.

Dear Editor,

It is now 12:15 in the morning. I have sat up for the past two hours reading your magazine at a time when any decent human would be in bed asleep. So now what do I do? I write a letter. Brilliant!

For September, seven stories, three of them novels; that's a lot of science fiction. In this stellar array "Minus Danger" won first place. It reminds me of a story I read somewhere long ago, only negative space is a new twist. "The Metal Moon" took second. Not too original I suppose but a good story. Why can't mechanical men have names? Numbers are so darn hard to memorize or recognize. Third is "Minion of Chaos". Pretty good. The novels came in 1-2-3, and Mr. MacDonald maneuvered this one into an unexpected ending which was sharp. "Bride of Eternity" promised well but that's about all. Sort of left one flat. Takes fourth. Number five is "Star Brother". Pretty fair, but I wonder why Mullen likes dying men? His last job was very good and this is fair, but as a steady diet it would become a little sickening. Six, "World of No Return", poor. My screws may be a little loose, but my head doesn't detach. "The Miniature" number seven. No more need be said.

The cover is great. Quite an improvement over July.

I see Larry Shaw has made up. My congratulations to the Sickles Street Literary Society.

Good morning,

Keran O'Brien
186-29 Avon Rd.
Jamaica 3, L. I., N. Y.

## MISSIVES AND MISSILES

We had high hopes, but there is no Everybody Loves Larry Shaw Dept. Read these and weep.

Dear Ed:

We're back. (Ain't we devils.) Just managed to get your mag. I hope I'm not too late. First thing I did was look at Missives and Missiles. Oh shock when I recovered the first thing I said was wha hoppen. I don't know what Scalzi or Crouch think but in a way I'm sceptical with a capital "S". Oh, its all very nice for Shaw to say he has seen the light but I wonder if he means it or is just trying to get us off our guard. Okay Larry if you mean what you say all's forgiven, if not start something . . . Who on earth is Shelby Vicks. Shaw gets cured (I think) and up pops another nut. Oh well that's that. The ish was fair with plenty of room for improvement. The cover is improving tho ish by ish. I'll be seeing ya. Special* If Helena Schwimmer sees this letter will she please get in touch with me.

Thanks.

Sid Herman & Co. (21)
1 Sickles St.,
New York 34, N. Y.

Dear Editor,

Well, this issue of SUPER SCIENCE is even better than those preceding it. The cover was the best yet, principally because it was better printed. Finaly's inside illos were superb, as usual.

Another letter by Larry Shaw! Oh, no! It seems to me that the air of abject apology and self-deprecation evident in this letter (if it's sincere) is even more nauseating than his complaints. And where does he get off criticizing Al Wickham? Reviewing the latter's letter, I find nothing in it any worse than the things Shaw himself has said. Hey, Larry, go back to your complaints. As an apologetic penitent, you are a miserable failure.

What I would like to see in future issues: stories by Asimov, Simak, Brackett, Harness, Heinlein, Hubbard (and Lafayette), Kuttner and Bradbury; art work by Bok, Finlay, and Paul, especially covers by the latter two.

Well, in closing, I will congratulate you on having *finally* become bi-monthly instead of quarterly. Keep up the good work.

Sincerely—
Robert E. Briney
561 W. Western Ave.
Muskegon, Mich.

Dear Editor:

I've decided that the quarter I grudgingly dug up to buy SSS was well spent.

Wait now! By gummy, you're not going to get off without my complaint!

After reading *World of No Return*, I im-


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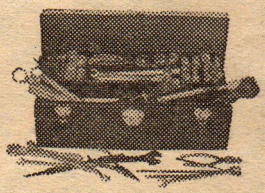

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mediately laid down to recuperate. Heavens, man, where did you dig that grisly relic up at? It read more like a horror story than an stf. tale. Please let us have no more of this stuff.

As far as my opinion goes, the rest of the mag was tops. Especially *Minus Danger!* That story had me reading so fast to reach the climax, I had to start over to find out what happened.

Keep up the good work.

Howard Blind
503 Ray Ave. N. W.
New Philadelphia, Ohio.

## Stop Press Dept.:

Dear Editor:

Allow me to introduce myself.

That is a strange thing to say, for two reasons. The first reason is my name, which is Larry Shaw. While readers of your letter section are only too familiar with that name, they are not familiar with *me* (with the exception of such rare old-timers as that gentleman and scholar, Chad Oliver).

Although I did not write the letters from "Larry Shaw" which have heretofore appeared in—perhaps I should say violated—your otherwise highly readable and rewarding columns, I now take it upon myself to apologize for them. Actually, the fact that they have appeared could be considered my fault, though only indirectly, and I do feel a certain amount of guilt.

That brings me to the second, and more important, reason for my introduction being strange. Here I must become even more paradoxical. You see, I, and I alone, am in possession of facts which I believe must be brought to the attention of your readers; contrariwise, the knowledge of these facts may place your readers (for whom I feel nothing but brotherhood, and wish nothing but happiness and security) in even graver danger than that which now threatens them. . . .

So far, I have probably succeeded only in being confusing. Believe me, if there were an easier way to make things clear, I would do so. Now, however, having broken the ice, I will state the facts in their broadest possible terms. If I receive any kind of a favorable reaction at all, I will go into greater detail in future letters.

Here it is: For the past two years, I have been devoting all of my time, energy, and cash to an investigation of a movement in science-fiction which I shall refer to as the Blank Mystery. I have discovered many elements of truth in it. Which elements are true, and which are purely inventions of an evil genius, cannot be gone into here. Actually, the distinction is unimportant, since even when the true facts have been presented, the purpose behind the presentation has been an alien and vicious one.

The main thing is, there *is* a hidden race which controls humanity. I believe, and I have plenty of evidence to back this up, that Blank himself is a member of that race. He and his fellows intend to conquer the world completely; they rule a large portion of it now. But they have one weakness: *they cannot work in secrecy.* In order to affect any individual or group, they must first project an image of themselves upon the consciousness of that individual or group. That is the reason for the Blank stories. Though they show a completely distorted picture of the true situation, these stories have achieved their original purpose of establishing a beachhead for the conquest of fantasy fandom.

The foregoing paragraph contains the essence of the problem which I have been trying to solve. It presents fandom with a slightly clearer idea of the menace which looms on their horizon, the doom which all humanity is facing. Those of you who do not yet believe, think a while upon the letters which have already appeared over my name. *That* "Larry Shaw" is a member of the enemy race too. Superficially, *his* purpose has been to create dissension in the ranks of fandom, thus causing that otherwise dangerously advanced and intellectual group to be a much weaker and more vulnerable target. But to go deeper, to a point which no investigator but myself has reached, is to find the real purpose: *he* simply wanted to impinge upon your consciousness, to infiltrate his essential evil into your thought processes, to make living zombies out of each and every one of you. You can see, then, that by making you more aware of *him,* I may simply be allowing *him* to gain an even stronger foothold. On the other hand, only if you know the truth can you fight back.

This is a call to battle!

I have just purchased the five new issues of Super Science Stories published since its revival. It should not be difficult to understand my need of clearing my mind of all thoughts of the enemy race for at least a brief period, before I plunged back into the fight. I was astonished to see the letters written by "Larry Shaw" in print, but I had no trouble divining their source, as I have outlined it so sketchily above.

I, Larry Shaw, am perfectly satisfied with Super Science Stories just as it is. I love and respect its every fan and reader. I have no complaints on these scores, nor do I have any time for quibbling about such trivial subjects. The fate of the entire universe is at stake! I stand before united fandom now, humbly and alone, asking only that they make every effort their consciences will allow to believe me.

It's they or us! And remember, you can never tell who is one and who is not. Except, of course, by asking me. *I know!*

Hopefully,
Larry Shaw
1301 State St.
Schenectady 4, N. Y.

*(Continued from page 6)*

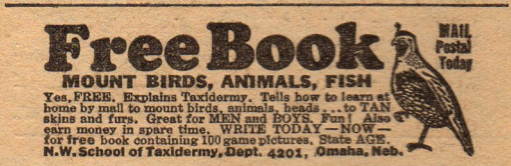
were auctioned off to the eager fans. A Lawrence cover from the October 1946 Famous Fantastic Mysteries was bought by Don Ford for twenty-seven dollars. A Bok black and white sold for sixteen dollars. Most interior drawings went for around three dollars each. All told, the auction took in $980.15; the convention as a whole took in $1,307.15, of which $863.18 was profit. Three hundred dollars of this was put aside to set up Fandom's own "Marshall Plan". The money will go into stf. books and magazines for Great Britain and Australia, where because of the current dollar shortage, the fans cannot buy U.S. imports. One hundred fifty dollars was sent to the sponsors of the next convention (in Portland, Oregon) to get them started on the 1950 convention. Fifty dollars went to the National Fantasy Fan Federation, to help them carry on the good work as fandom's No. 1 national organization. The rest went to the Cincinnati fan group, who sponsored the "Cinvention". They will use it to buy a mimeograph machine and other items for the club.

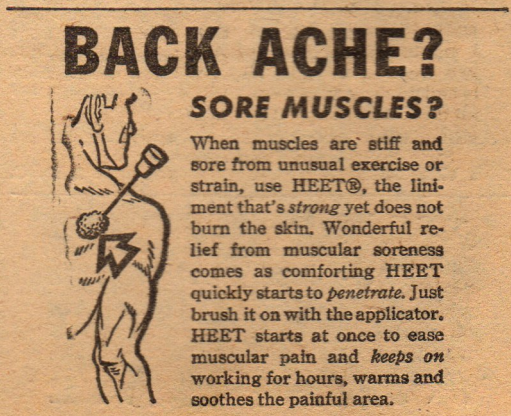
Three ballots were needed to pick the 1950 convention site. On the second ballot, New York and Portland tied with sixty votes each. On the third ballot Portland was chosen with sixty-seven votes, leaving New York a close second with sixty-three. New Orleans and Washington, D. C., were eliminated in the first ballot.

Our thanks to the Cincinnati Fan Group for a fine convention. For information on the 1950 Portland Convention, write to Don Day, 3435 N. E. 38th Ave., Portland 13, Oregon.

## FAN MAG REVIEWS:

**The Fanscient,** Fall 1949, published quarterly by the Portland Science Fantasy



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Society, 3435 N. E. 38th Ave., Portland 13, Oreg. 25¢. The boys outdid themselves in this Second Anniversary Issue of their vest-pocket photo-offset fan mag. Some are in two colors; the first time this has been done in photo-offset since 1942. We can't pick the best item in this issue, it's all too good. Don't miss it.

**Science, Fantasy and Science Fiction,** July 1949, published quarterly by Franklin M. Dietz, Jr., Box 696, Kings Park, L. I., N. Y. 20¢. This 12-page mag, formerly photo-offset, is now printed. The two-color cover is excellent. We like the "Conclave Report." You'll like this one.

**Canadian Fandom,** No. 16, July 1949, published occasionally by Ned McKeown, 1398 Mt. Pleasant Rd., Toronto 12, Ontario, Canada, 10¢. One of the better mimeographed magazines, with an excellent photo-offset cover by Cliff MacFayden. We like the "By Jove!" column of comments on the pro mags, and the excellent feature "Classics of Science-Fantasy Fiction" by Bill Grant.

**Spacewarp,** Oct. 1949, published monthly by Arthur H. Rapp, 2120 Bay St., Saginaw, Mich. Mimeographing has improved 100%, contents still high and on the lighter side of fandon. 15¢. The readers' column, "Quien Sabe?" was unusually interesting this month. Radell Nelson did an excellent job, via mimeo and hecto, on the cover of this issue. For a fan mag that comes out on time and is interesting to all, get this one.

**Alien Culture,** No. 3, published irregularly by Jim Leary, 4718 Forest Hills Rd., Rockford, Ill., 15¢. Twenty-six well mimeographed pages, with a photo-offset cover by Berry; the cover is the same one used on the first two issues. Contents above average, with a good fiction piece by David H. Keller, a bibliography of C. A. Smith by Eldred Smith and an excellent illustration by John Grossman.

*(Continued from page 59)*

even then it did not stop. It went on, sliding, twisting, turning. . . .

It went out of sight. But it would fall fifteen hundred to two thousand feet before it hit.

STEVE went desolately back to Brady.

"You saw what happened," he said tiredly. "Maybe I was stupid. But I didn't know what else to do. If we could have communicated with him, we could have made friends...."

"No use," said Brady. His forehead was creased. "But that weed business.... You think those red plants are goin' to take over, like you said?"

Steve went to the burro-pack and looked at the glass jar.

"No," he said drily. After all—not a chance. These buds haven't developed and now they won't, because these plants work fast. It went so far and no farther. The limit of a plant's normal northward range and the time of year it blooms are determined by the amount of sunshine it needs each day before it can form a flower and seeds afterward. Spring plants don't need much. Midsummer plants need more. The critical factor is ultraviolet. We've got a thick atmosphere, here on Earth. Not much ultraviolet gets through, by comparison with what arrives from the sun. But this plant developed where the air was so thin that the ultraviolet was ten or twenty times stronger than on Earth. So this plant will never bloom or make seed on Earth unless we put it under a battery of ultraviolet lights. Which we will."

Then Steve said in rueful satisfaction, "And will they be swell arid-area plants! We may have to tinker with them with X-rays to get them to mutate, and we may have to propagate favorable varieties by slips. But with a plant that'll grow where these do, we'll wind up with cattle-food

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and maybe an industrial raw material and —and—"

Brady said, "We'd oughta try to find that fella's body."

"Naturally," said Steve. "I wish we could have made friends. . . ."

But there simply hadn't been any way to do it. On the way down to the foot of the mountain-buttress, Steve found himself thinking more and more regretfully about that failure. There were other matters to be attended to, of course. The wreckage had to be retrieved and investigated. That should be a government job. There might be some very useful stuff.

(There was. It's not yet publicly admitted, but four new plastics, a prime-mover principle, and something that looks like the germ of a space-drive are still top secret products of the investigation. Even the dry-area plants—there are four varieties, so far, with possibilities that look too good to be true—are not yet released. And of course the proof that intelligent life exists on other planets and that space-travel is attainable can't be officially acknowledged because it would create panic if revealed before we have adequate spaceships of our own.)

But that morning, and that day on the way out to the wreckage in Seco Valley, and the following two days on the way to San Felice to pass on what he'd found to the proper quarters—during that time, Steve didn't think of the affair in technological terms. He was haunted by the end of his and Brady's hunt for the body of the creature who had plunged to his death rather than be captured. It was tragic that all their efforts were in vain. They found where the body fell, but they couldn't climb a vertical, seamless cliff to reach the shelf on which the poor devil of a Martian had fallen—alone of his kind on an alien planet—and to which the buzzards were already hurrying.

*(Continued from page 97)*

"The whole thing's tremendous! It's gigantic—colossal. In fact, it's—" he groped futilely for adjectives to supply his super need—"almost mediocre!"

If the above convulses you with laughter, you will want to read *The Kid From Mars.* Otherwise, you will probably do just as well to content yourself with looking at the reasonably attractive two-color jacket.

**PLANETS OF ADVENTURE** ***by Basil Wells. Fantasy Publishing Co., Inc.***

Fifteen off-trail stories of science-fiction and fantasy, by an able young writer whose first story was published in this magazine a few years ago. As the title implies, most are adventure stories with interplanetary backgrounds, sometimes involving lizard-men from Mars, sometimes even stranger beings from the planets of far suns. The book is attractively bound, with a jacket by Jack Gaughan.

**THE CONQUEST OF SPACE** ***by Chesley Bonestell and Willy Ley. Viking Press.***

Not fiction, but a "must" book for science-fiction readers, this new volume is one of the handsomest and most enjoyable productions of the year in *any* field. More than sixty of Chesley Bonestell's wonderful astronomical paintings are reproduced in it, sixteen of them in full color. There is an exceedingly interesting and informative text accompanying them, but the pictures are the book: there is literally nothing like them in print, and it is hard to imagine the true science-fiction reader who would be able to turn the page on such gems as the frightening study of Jupiter's surface, or the provocative "View of the double star Mira, seen from an imaginary but possible planet 450 million miles from its surface."

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*(Continued from page 95)*

pointing some kind of a dinkus at the boss and telling him what to do. And believe me, the boss is doing it. Luede is sweating blood. Move along, you two."

"Wait a minute . . . a stowaway?" Barnett said. "What kind of damned foolishness is this? How would a stowaway get into a spaceship? The airlock is the only entrance."

Barnett pushed past the dazed Fell and moved forward to the main cabin. He thrust open the door.

Luederson, his face as gray as death, was sitting at his desk staring with sick fascination at a Martian who stood in the middle of the cabin. The Martian held an odd object of crystal and glass pointed at the human. A weapon of some kind; or so Luederson seemed to think.

The Martian was Elso. Not Gelkid, as Barnett had thought it would be, nor any of the others. Elso!

Elso smiled at them. "You are free? Then we will leave together." His gaze concentrated on Luederson. No words were spoken but there seemed to be communication, for the human flinched and nodded hastily. "Yes. Yes, yes. I will order the blast-off immediately. No, we will not return." On this last point, Luederson seemed most positive. Watching, the dazed Barnett got the impression that no force in the universe was strong enough to drag Luederson back to Mars.

Elso moved through the door. Barnett and Schultz followed. They dropped lightly to the sand, moved quickly away. Behind them the lifting jets began to roar.

Like a lumbering meteor the ship slid into the silent sky. In the distance, it became a moving star, then was gone.

"You will stay here, now that the evil ones are gone?" Elso spoke gently.

"Of course," Barnett answered. "That is what I really want."

"The invention you made, the drive you

invented?" the Martian continued. "Is it not important?"

"Very important, to others. But not to me, any longer. I've seen something else that is more important than the drive. I'm going to publish the full description of the drive, make it free to anyone who wants to use it. That way Luederson will never be able to use it to build up a space monopoly." Barnett was not really thinking about the drive. There was something else on his mind. "Elso—"

"Yes, my friend."

"How did you get into that ship?"

Elso laughed gently. "That puzzles you? I think it puzzled the evil one too."

"But how did you do it?"

The laugh was very gentle. "At another time I will explain it to you. Now we are both very tired."

"Of course. I had forgotten." Barnett was contrite. Elso was old. Such efforts as finding ways into a spaceship and dodging bullets while there must be tiring to the aged.

They stood at the edge of the zone of silence. The day was ending and a cool breeze was pushing across the desert.

"Good-by, my friend," Elso spoke softly. "In some other time we will talk again." Making the sign of parting, he moved into the zone of silence and out of sight, the two men watching.

"Johnny, who was that?"

"That was Elso." With the pressure of so much on his mind, he had forgotten that Schultz did not know Elso. He tried to tell Schultz who Elso was.

Schultz shook his head. "Johnny—whoever he was, when he walked with us—he didn't make tracks in the sand."

"What?"

"Look for yourself—"

Barnett followed the line of Schultz's pointing finger. Behind them, firm and unarguable in the sand, were two sets of footprints.


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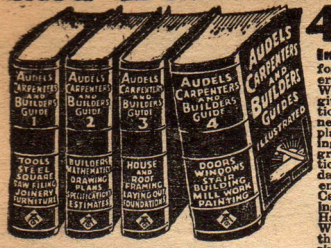

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"Osmer!" Barnett grabbed Schultz's arm. "If he walked without leaving tracks, then he could get into the ship—"

He fell silent. Was this a miracle? So it seemed. What they had seen here was certainly not Elso but was something else. What? Barnett did not know. One mystery solved opened up a dozen new mysteries beyond it. . . . Barnett took a firm grip on a mind that was threatening to run away from him. He was trying to remember something. Ah, yes. There were no miracles. There were only as yet unknown laws in operation which the untrained mind called miracles. *As yet unknown?* Then someday they would be known. Nature would always answer when the right questions were asked.

"Osmer, I was thinking that this place, this Pillar of Znakevog, that there is no other place like it in the universe, that things may be done here, experiments performed, questions asked, that are impossible anywhere else." He paused, breathless with the vision that was rising before him.

"We'll tackle the problem this way," Barnett said. Already he was making plans, thinking how to ask the questions and how to set up the experiments to get the right answers.

*In some other time, we will talk again,* Elso had said. In John Barnett hope was rising like a shooting star.

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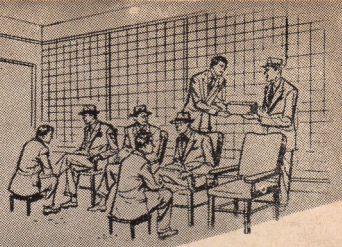

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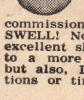

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